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ABSTRACT

As part of Utah's 1978 statewide assessment, a number of tests were administered to over 4,000 fifth grade students from 64 elementary schools and over 2,000 eleventh graders from thirty high schools. This report presents the results in each of the areas tested: (1) intellectual maturity--measured by reading and mathematics achievement on the nationally-normed Comprehensive Tests of Basic Skills; (2) emotional maturity; (3) social maturity; (4) aesthetic maturity; (5) productive maturity; (6) enjoyment of school; (7) educational process--including individualization of instruction, reinforcement of self concept, classroom participation, career development, and expectations (fifth grade only); and (8) school demographic characteristics--including socioeconomic status, size, location, Title I classification, race, and physical architecture (open versus closed). Key findings are summarized for each of the areas, and recommendations are presented for local, district, and state-level staff. Results in some of the areas tested are briefly compared to the results of the first assessment, which was conducted in 1975. (GDC)

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UTAH STATEWIDE EDUCATIONAL ASSESSMENT 1978:

GENERAL REPORT

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December 1978

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FOREWORD

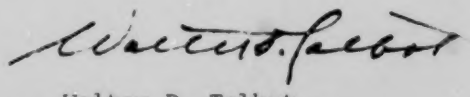
The State Board of Education and its staff are committed to providing quality education for each student within Utah's public school system. Related to this commitment is the need for the monitoring of performance of the public schools in various ways. It is our conviction that assessment of student performance is central to making progressive changes in the educational system. To be most useful such measurement must go beyond the typical tests of academic achievement in basic skills areas and into such areas as are suggested by the goals which have been set for public education in the State.

This report presents the major results from the Utah Statewide Educational Assessment Program conducted during the 1978. This program was Utah's second comprehensive attempt to assess the quality of education statewide using a number of carefully selected measures of important education goals.

The 1978 Statewide Assessment effort involved the testing of students from random samples of both elementary and high schools. Over 4,000 fifth grade students in 64 elementary schools and over 2,000 eleventh grade students in 30 high schools took part in the study.

We believe this General Report, along with an Executive Summary Report, technical documentation, and a brochure which were produced from the study provide a comprehensive examination of student performance across the State of Utah in respect ot both important traditional academic areas as well as other important goals of education in Utah.

The entire 1978 Utah Statewide Educational Assessment Project was developed and refined under the direction of the Office of the State Board of Education with assistance from the Institute for Behavioral Research in Creativity.



Walter D. Talbot
State Superintendent
of Public Instruction

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The successful completion of a project of the magnitude of Utah Statewide Educational Assessment would not be possible without the assistance and cooperation of many individuals and organizations.

Within the Office of the State Board of Education, numerous staff members helped shape this program. Several staff members had a very active role in reviewing and creating measurement devices. Special thanks are extended to Technical Assistance staff members: Nancy Livingston, for her review of items in the reading area, and Donald Clark, for his review of the mathematics materials. Lynn Jensen of Career Education provided very valuable suggestions and review of the measurement devices in the Productive Maturity area. Charles Stubbs of Technical Assistance and Avery Glenn of Curriculum provided original item pools in the visual arts and music areas, respectively. Nate Winters of the University of Utah also provided excellent assistance in the visual art area.

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Division of Data Processing for their helpfulness in scoring of the CTBS.

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Recognition is made of the contribution of a special Legislative Council Committee on Educational Accountability for their early reactions and suggestions in respect to planning for the original project in 1974-75.

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CHAPTER I

INTRODUCTION

Accountability and Assessment

This report represents the results of Utah's second comprehensive statewide educational assessment project. Educational assessment is one important aspect of the concept called "accountability." While the word "accountability" is relatively new to education, the process which it implies is not. Educational accountability means the process of being accountable, through evaluating performance and reporting results for those tasks, objectives, and goals for which individuals and organizations in the educational enterprise are responsible. State assessment programs typically seek to provide information about student performance in a state educational system but do not focus upon specific areas of responsibility.

The Utah Statewide Educational Assessment program is an analysis of the strengths and weaknesses of public education across the state in certain key areas of educational endeavor. The assessment focuses on the performance of the elementary and secondary educational system across the state as a whole. Thus, this report deals with elements of the accountability of Utah's public education system.

Olson (1973), in Developing a Large Scale Assessment Program, pointed to some key considerations which underlie today's emphasis on educational accountability:

> Americans currently are spending well over $100 billion for all forms of education, public and private. This means that education has become one of America's biggest industries. As a result, the public wants some evidence concerning the quality of the educational programs.
>
> In a society where education is everybody's business, the adequacy of that system becomes everybody's business. If Americans today were satisfied with their society, if they were united in their perception of social priorities, and if they felt reasonably secure about their power to shape and control the future, there would be less concern today about the concept of accountability. Therefore, it is not surprising that education should come under increasing scrutiny from those on the left, the right, and in the middle, who feel a need to know what the schools are accomplishing, and how their accomplishments can be improved. Citizens, including professional educators, now see assessment as a means to "get a handle" on what has been happening and on what should happen in terms of student performance. (p. i)

At the national level, a significant indication of interest in the assessment area is the National Assessment of Educational Progress. National Assessment was created in 1969 to accomplish two basic goals: 1) to make available the first comprehensive data on the educational attainments of young Americans in 10 learning areas; and 2) to measure any growth or decline that takes place in the educational attainments of young Americans. Over the past several years, National Assessment has entailed a very large scale test construction effort and the testing of thousands of children and young adults across the entire country. Every year this project tests a stratified random sample of nearly 100,000 students. Thus, National Assessment is a major assessment/accountability effort.

A recent study examined the characteristics of state assessment programs across the nation (Kauffman, 1978). This study revealed that state assessment programs now exist in 41 states (up from 30 in 1973). Such programs were operational because of legislative mandates in 19 states and existed due to state board directives or other reasons in 22 states. Kauffman reported that the areas most often examined in the state assessment programs were mathematics and reading (37 states), followed by language (24 states), science (9 states), and social studies (7 states). About half of the programs used some form of sampling as opposed to testing every student at a grade level. Results are reported to the legislature in 33 states, to the state board of education in 34, and to schools or districts in 36 states. The major use of state assessment results across the nation is for curriculum accountability or evaluation, followed by diagnosis and instructional monitoring.

Impara (1978) recently reviewed valid and invalid uses of statewide assessment programs. In his view, statewide assessment "is the means by which the public is made aware of the status of public education " (p. 5). Valid uses for statewide assessment information include contributing to funding allocation decisions and especially instructional planning which included administrative practices, staff development, curriculum design, etc. State assessment programs can also help to raise new questions which can be a valuable contribution to educational theory and practice. According to Impara, invalid uses of state assessment information include school

by school and district by district comparisons, allocations of district funds, evaluation of teachers and administrators, making decisions about student performance, and as a basis for establishing statewide curriculum.

A major influence on the accountability movement has been a body of research findings which suggests a lack of efficacy in the entire educational process. Most notably, Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, and York (1966), in what has come to be known as the "Coleman Report," concluded that, in general, the public schools exert very little influence on the achievement of children independent of their own family background and social context. These and other similar findings constituted a major challenge to educators to demonstrate empirically the impact of educational procedures.

The Utah Program of Statewide Educational Assessment

Beyond the widespread emphasis on accountability and on programs such as National Assessment and state assessments, what are the antecedents of the Statewide Educational Assessment program in Utah? Utah educators, citizens, and legislators have traditionally been concerned with improving educational practice. Recognizing this, the State Superintendent of Public Instruction, Walter D. Talbot, provided the major impetus for the first Utah Educational Assessment in 1975. Utah Statewide Educational Assessment is one example of the commitment of teachers and administrators throughout

the state, local school districts, and the State Board of Education and its staff to provide quality education for each student within Utah's public school system.

The Utah State Legislature has charged the State Board of Education and its staff to accomplish various evaluation activities, including Statewide Assessment. The Legislature expressed its intent in the Appropriations Act of 1977, in which the State Board of Education was directed to mount a continuing assessment program built on the model established in the first Utah Statewide Educational Assessment conducted in 1975. Present long range plans call for a major assessment every three years, with appropriate instrument development and refinement activities taking place between the major assessment dates.

Beginning in 1974, many groups and levels within the public educational system helped shape the nature of the Utah Statewide Educational Assessment. These included: the State Board of Education, the State Superintendent and his staff, local district superintendents, school administrators, and teachers. A significant contribution was provided by a special Legislative Council Committee on Educational Accountability. Once initial planning for Statewide Assessment was completed, the Office of the State Board of Education contracted with the Institute for Behavioral Research in Creativity (IBRIC) to accomplish many of the operational aspects of both the 1975 and the current study. IBRIC has had extensive experience in large scale data collection, test construction, and a variety of educational

evaluation and research studies.

A most important decision in any evaluation or assessment effort is the determination of what will be assessed. In 1959, a formal statement of educational philosophy and objectives for Utah was published in Curriculum Framework for Utah Schools (Utah State Board of Education). This was followed by the work of an eight-state project called "Designing Education for the Future" (DEF) in which students, parents, professional educators, and a variety of citizens in eight western states, including Utah, identified the major directions education should take. These goals were subsequently further refined by the staff of the Utah State Board of Education and approved by the State Course of Study Committee. The goals were published in the document, Goals and General Objectives of Education in Utah (Utah State Board of Education, 1973). A list of the goals follows.

> Intellectual Maturity--A person's intellectual maturity is exemplified by a continuing desire for understanding; a continuing interest in current problems; a continuing accumulation of knowledge; and an increasing ability to use his or her rational powers.
>
> Ethical-Moral-Spiritual Maturity--A person's ethical-moral-spiritual maturity is exemplified by continuing use of rational powers and internalizing, valuing, and empathizing processes in satisfying oneself regarding life's purposes; in locating oneself in time and space; in preserving life; in comprehending death; and in perceiving relationships to humanity and to the basic forces of the universe.
>
> Emotional Maturity--A person's emotional maturity is exemplified by an increasing constructive management of emotions, of coping with stress and frustration, self-acceptance, and of empathizing with others.

Social Maturity--A person's social maturity is exemplified by increasingly exercising freedom with its accruing responsibilities; demonstrating functional leadership and appropriate followership; interacting in the social environment for self-realization and/or an awareness of the needs and values of others; acting within the basic values, institutions, and processes of American democracy; understanding world interdependence and how diverse cultures function.

Physical Maturity--A person's physical maturity is exemplified by a continuing appreciation and respect for the mind and body; increasing neuromuscular development; fulfilling experiences through physical activity; and continuing positive response toward the solution of problems arising from increased leisure and health needs.

Environmental Maturity--A person's environmental maturity is exemplified by a constant seeking to understand one's natural environment through rational thinking processes; through demonstrating fundamental skills required in the use of materials, equipment, and information gathered concerning the environment; through exhibiting an awareness of relationships that exist between humanity and the environment; and through performing acts in the environment that are relevant to one's own well being and to that of others.

Aesthetic Maturity--An individual's aesthetic maturity is exemplified by an increasing sensitivity in perceiving the environment and acknowledging the human qualities of each individual; by a more satisfying use of one's senses in making aesthetic judgment; by more capably communicating aesthetic insights through the cultural arts; and through a greater harmony with oneself.

Productive Maturity--A person's productive maturity is exemplified by a continuing involvement in the creating, generating, and using of ideas, goods, and services beneficial to humanity and satisfying to the individual.

Aspects of five of the above stated goals were measured in both the 1975 and 1978 Utah Statewide Educational Assessments. These were: Intellectual Maturity, Emotional Maturity, Social Maturity, Aesthetic Maturity, and Productive Maturity. Goals such as these provide a general definition of educational attainment. Such goals should underlie the formulation of more specific and instructionally-

oriented objectives in the schools of the state. The responsibility for helping students achieve broad goals such as these does not lie only with the schools. In many respects, such goals are societal, and therefore a concern of all our institutions, including the home, the schools, the churches, and the community at large.

In addition to measuring student outcomes, Statewide Educational Assessment obtained a variety of information on factors which influenced the attainment of student outcomes. Some of these might be termed demographic measures. They consist of factors such as certain student and school characteristics, including geographical designations, socioeconomic status, and a variety of other specific descriptors. Further, information was obtained relating to measurement of the educational process--that is, assessing factors which describe certain key activities within the classroom and factors which describe the school in general. Examples are classroom emphasis on individualizing instruction, student classroom participation, and class size.

Thus, three quite different types of information were collected for the Utah Statewide Educational Assessment in 1975 and 1978. The first deals with student outcomes, that is, what students are achieving and to what degree they are achieving it. The second deals with certain characteristics of students and schools which might influence achievement. These are called demographic or classification measures. The final type of measurement is concerned with identifying certain key aspects of the educational process--i.e., the techniques and

strategies by which students learn. The purposes behind the collection of information in these three general categories were to provide: 1) an accurate picture of achievement of students in Utah's public schools; 2) an indication of how certain critical demographic factors influence the way students achieve; and 3) some insight into instructional approaches and techniques which result in high achievement of students. No one study could accomplish any of these three purposes exhaustively. The present study, however, provides some very sound indicators of each of these three areas.

Reporting of Utah Statewide Assessment Results

In any evaluation or assessment enterprise, the group or groups to which the information collected will be relevant should be identified at the outset. For the present study, the information collected is most germane to decision makers at the state level and the general public of the state. Included in the former category would be: state legislators, the State Board of Education, and the Chief State School Officer and his staff. Assessment results also have relevance for local school districts, school level administrators, teachers, and students. Specifically directed at these latter groups were three reports including individual student test results on the mathematics and reading achievement sections of the standardized test employed in the study.

Since different groups of professional educators and the public

do have different needs relating to the information produced from this study, several types of reports were planned to meet the needs of specific audiences. This permitted the data to be effectively and economically used at different levels in the educational system rather than just at the state level. Thus, several types of reports have been produced from the Statewide Educational Assessment.

Reports Provided to Each School in the Sample

(1) Reports of the performance of their own individual students on the mathematics and reading achievement tests administered as part of the study.

(2) Analysis of mathematics and reading achievement test results based on the average scores of all students taking tests in a particular school.

(3) School level reports on measures directed at the largely non-cognitive Utah goals including: Social Maturity, Emotional Maturity, Aesthetic Maturity, Productive Maturity, and selected educational process scales.

Reports Which Present the Combined Results for the Entire State

(1) The present General Report directed at general educational audiences, featuring the basic descriptive and research-oriented results.

(2) The Executive Summary Report which summarizes the most important aspects of the entire study for people, such as Board Members, legislators, and others with significant interest, but limited time.

(3) A concise brochure which briefly highlights key aspects of the study for the general public.

(4) Technical documentation presenting in-depth methodology and statistical results.

These various approaches to reporting results should deliver the most meaningful level of information to each target group.

Key Characteristics of the 1978 Utah Statewide Educational Assessment

Utah's Statewide Educational Assessment project provides:

(1) Statewide information on how Utah students perform in specific basic achievement areas.

(2) Statewide information on the standing of Utah students on other largely non-cognitive goals of education including: Emotional Maturity, Social Maturity, Aesthetic Maturity, and Productive Maturity.

(3) An examination of the relationships between important demographic and educational process variables and specific educational outcomes.

(4) Information for the schools sampled in the Statewide Assessment project which will aid the teachers and administrators in those schools in making instructional decisions.

The design of Statewide Educational Assessment does not:

(1) Allow for the comparison of individual school districts.

(2) Provide a teacher evaluation system.

(3) Allow the direct evaluation of special programs.

(4) Measure everything of importance relative to the educational system.

(5) Provide information about the causes of educational achievement.

These latter procedures are beyond the scope and purposes of Statewide Assessment.

CHAPTER II

RELATED STUDIES

Previous Statewide Reports on Educational Performance in Utah

The Utah State Board of Education has published on three occasions a compilation of educational quality indicators entitled, How Good Are Utah Public Schools? The first report, published in 1967, was an initial attempt to bring together various sources of information about the overall quality of Utah's public schools. This report featured testing information from several sources including: the Armed Forces Qualification Test, the Advanced Placement Program, and the American College Testing Program, as well as a summary of achievement testing conducted in Utah's public school districts.

Some of the major findings and conclusions resulting from the 1967 study found that Utah military draftees ranked 6th among the states in the nation on the 1965 Armed Forces Qualification Test. In regard to American College Testing (ACT) Program performance, the Utah students tested scored above the national norms for all high school seniors on all ACT sub-tests which included English, Mathematics, Social Science, and Natural Science.

Among the recommendations based on the 1967 study was the following:

> Procedures should be established for a systematic, continuous appraisal of Utah's program of public education. The limitations of the present study are acknowledged. It is recommended that subsequent studies be concerned more directly with such objectives as the abilities, attitudes, and values which contribute to responsible citizenship, vocational competence, and maximum personal adjustment. (p. 83)
>
> Another recommendation stemming from the study was:
>
> A broad program of related research be initiated for the purpose of (a) improving the measurement of all aspects of educational output, especially those that have to do with the personal and social qualities of pupils and for which, in many cases, no satisfactory measures exist; and (b) discovering those processes of education and conditions of learning that will [maximize] the quality of educational output under a variety of circumstances. (p. 83)

The 1971 How Good Are Utah Public Schools? again examined achievement indicators which were measured in the 1967 study. In addition to the achievement and aptitude variables reported in 1967, however, the 1971 study reported some statewide results gathered using the Student Information System (SIS) set of student and teacher ratings. The SIS was a technique designed to measure affective variables such as Positive School Attitude, Learning Habits, and Social Adjustment.

In the achievement areas, the 1971 study found the Utah students tested scoring slightly above national norms in mathematics, science, and social studies but below national norms in language and reading. Utah's ranking on the Armed Forces Qualification Test had dropped from 6th to 9th between the 1967 report and the 1971 study. The 1969-70 scores from the American College Testing Program were higher than the 1965-66 scores.

Selected findings from the Student Information System were that

both elementary and secondary students rated themselves higher in non-academic self-concept than in academic areas and participating teachers rated students higher in social and emotional areas than in scholastic areas. The most common student problems reported by teachers were: hyperactivity, personal cleanliness, coordination, visual problems, hearing problems, and clumsiness. A rather disturbing finding was that at least half of the students in the SIS study reported poor attitudes toward learning.

The third in this report series was published in 1974 under the specific title, Utah Educational Quality Indicators. The measurement results examined were again related to the earlier reports. The 1974 report featured results from the American College Testing Program, the Armed Forces Qualification Test, the General Aptitude Test Battery, the Advanced Placement Program, as well as some census information. This third report contained information of a longitudinal nature for several of these measurement sources.

Longitudinal findings from the ACT test showed that Utah high school students tested were still scoring slightly higher than the national averages for the entire period from 1968 through 1974. In Mathematics, both the Utah and national averages reached a high point in 1970 and then declined slightly from that time, a finding which will be reviewed later in this report as the results are presented. The Utah Mathematics average exceeded the national college-bound average in five of the eight years studied between 1967 and 1974. The ACT Social Studies test showed Utah averages higher than national scores by slight margins in each of the years from 1968 to

1974, while on ACT Science, Utah students tested demonstrated a clear superiority which was maintained consistently during the time period studied.

Other information from the 1974 report, based on the ACT student profile section, showed that during 1974 Utah students had higher average numbers of out-of-class accomplishments in seven of nine extra-curricular activity areas. When Utah students were given a chance to evaluate their high school education, a distinct majority of the Utah high school students participating in the ACT Program in 1974 rated their high school programs in general as either good or excellent. Utah high school students indicated specific needs for educational assistance to a greater degree than did the national ACT sample in the areas of: educational and vocational planning, expressing ideas in writing, reading comprehension, study skills, mathematics skills, personal skills, and counseling.

Advanced Placement (AP) Program findings showed Utah students generally scoring lower than national AP averages in the period from 1966 through 1974. AP areas examined included American history, biology, chemistry, English, and mathematics. However, the most remarkable aspect of the AP Program was the very high participation rate of students in Utah high schools. The Utah participation rate in the AP Program for this period was nearly twice as high as the second ranked state and, in absolute numbers, compared favorably with states having ten times Utah's population. This indicated that a very high percentage of Utah students had access to programs for the academically gifted and that substantial numbers of Utah students were taking advantage of such programs.

n 1975, a special study was conducted on reading in the state by the Division of Technical Assistance of the State School Office (Utah State Board of Education, 1976) to evaluate reading mastery and reading processes. A representative sample of Utah students in grades six, nine and eleven was tested to obtain answers to the questions related to state objectives in word attack skills, comprehension skills, study skills, and affective reading components.

The test included some 120 items relating to 40 objectives which were considered valid indicators for the first three questions. The results focused upon the percentage of students from each grade level that mastered each of the 40 objectives; no comparisons with national norm groups were presented, since the study used only objective-referenced achievement items.

The findings indicated that students at all grade levels were learning phonic skills, but that dictionary skills and multisyllabic word identification skills were lacking. For comprehension, the data suggested a lack of mastery in the area of reading comprehension and reading skills in general, although greater mastery was shown in literal than in the interpretive analytical reading skills. The results of the test concerned with mastery of study skills revealed a lack of knowledge about a book's organization and use, reference skills, and the use of the dictionary.

Special instruments were administered to measure aversion to reading, self-confidence, pleasure in reading, and teacher ability to make reading interesting. The data results supported the premises that a student's achievement was related to self-concept, how the

student perceived the teacher's attitude, and the student's attitude toward the subject in which achievement was being measured.

Recommendations based on the findings of the 1975 study centered on three areas: (1) upgrading classroom instruction, including the organization of a total reading program leading to greater mastery in word analysis, comprehension, and study skills; (2) the need for teachers to create a positive reading environment in the classroom by showing concern for students and providing enjoyable reading activities for students; and (3) assessing present courses offered in colleges of education to determine their effectiveness in preparing teachers to provide an instructional program which fosters student mastery of reading skills.

The Utah Statewide Assessment program was designed to build on the recommendations of these earlier reports and to go beyond them in providing a comprehensive basis for improving education within the state. The recommendations cited from the 1967 report are especially relevant in directing the project to look at areas that are of importance, but which have not been traditionally investigated--such as, Social Maturity, Productive Maturity, and Emotional Maturity. So, while the Statewide Assessment can be seen as a continuation of these earlier reports, the current study has investigated and integrated many other areas of concern.

Summary of Results from the 1975 Utah Statewide Assessment

The present report will feature specific comparisons of 1975

to 1978 Utah Statewide Assessment findings. The following section is a brief summary of the 1975 Statewide Assessment (Ellison, Nelson, Abe, Fox, and Coray, 1975a).

An overview of the results from the extensive measurement accomplished on five of Utah's goals in the 1975 Utah Statewide Educational Assessment showed areas which were very strong and areas which could benefit by increased emphasis in the public schools. On the Intellectual Maturity Goal, the Utah 5th grade and 11th grade students tested performed effectively in both mathematics and science, clearly exceeding the national averages. The Emotional Maturity measures showed the Utah samples to have generally satisfactory levels of positive adjustment on scales assessing Academic Self-Concept, Self-Acceptance, Social Adequacy, Autonomy, etc. Measures obtained in the Productive Maturity area showed opportunities for improvement along several dimensions related to career education. Increased emphasis also seemed warranted in art and music achievement in the Aesthetic Maturity area, at both grades five and eleven. In the Social Maturity area, the Utah students tested generally reported considerable competence in dealing with peer relationship situations.

The 1975 study identified five educational process measures which demonstrated consistent moderate-to-high relationships with various student outcome measures. These educational process measures were Individualization of Instruction, Reinforcement of Self-Concept, Classroom Participation, Development of Career Talents, and Expectations. It was recommended that these and related instructional strategies should be further researched and deserved increased

emphasis in the public schools.

The impact of socioeconomic status on the achievement and attitudes of Utah students was an important finding and one which agreed with other studies across the nation. The finding suggested that steps should continue to be taken to deal with the educational disadvantages which accrue to students from lower socioeconomic backgrounds.

Research Findings Relevant to Statewide Assessment

In view of the abundant information which exists dealing with educational assessment and related research, it is not appropriate to provide a comprehensive review of the literature in this report. Such reviews are available elsewhere (Averch, Carroll, Donaldson, Kiesling, and Pincus, 1972; Bryant, Glaser, Hansen, and Kirsch, 1974; Coleman et al., 1966; Educational Testing Service, 1973; Glass, 1976; and Guttentag and Gaar, 1977). Throughout the project, however, extensive literature has been accumulated dealing with various key issues. What is presented here is a survey of extensive studies dealing with either specific points of view in educational assessment or providing an overview of literature surveys already accomplished by various other sources. This is intended to provide a picture of previous research findings which will create a basis for interpreting the present results and some of the rationale for the current study.

The passage of the 1964 Civil Rights Act required the U. S.

Commissioner of Education to conduct a survey and make a report to the President and the Congress, within two years, concerning the lack of availability of equal opportunities for individuals by reason of race, color, religion, or national origin at all levels of public educational institutions. In response to this request, the U. S. Office of Education began work on what was to become one of the most comprehensive and innovative studies ever attempted in the field of educational assessment. This survey consisted of gathering information on some 650,000 students and their teachers, principals, and superintendents, in approximately 4,000 public schools throughout the country.

The first publication resulting from the project, Equality of Educational Opportunity (Coleman et al., 1966) examined a wide variety of school, family, and student factors as they contributed to student achievement.

> In summary, the authors of the Coleman Report concluded: That the schools bring little influence to bear on a child's achievement that is independent of his background and general social context; and that this very lack of an independent effect means that the inequalities imposed on children by their home, neighborhood, and peer environment are carried along to become the inequalities with which they confront adult life at the end of school. For equality of educational opportunity through the schools must imply a strong effect of schools that is independent of the child's immediate social environment and that strong independent effect is not present in American schools. (Mayeske, Okada, Cohen, Beaton, and Wisler, 1973, p. 2)

These conclusions caused considerable controversy and generated a great deal of interest and concern on the part of educators and the public which is still being felt today.

Following the Coleman Report, a special group was formed in

the National Center for Educational Statistics to continue the analysis of the same data base. These efforts culminated in the report A Study of Our Nation's Schools (Mayeske, Wisler, Beaton, Weinfeld, Cohen, Okada, Proshek, and Tabler, 1970). This study was designed to determine how a school's characteristics influence such things as the achievement level of students.

The results showed that:

(1) Very little of the influence of a student's social background can be separated from the influence of the school.

(2) Until the 12th grade, the influence of a student's social background is usually larger than the influence of the school.

(3) The common influence of a school's characteristics and the student's social background on attitudinal and motivational outcomes differs from different grade levels.

(4) Schools that perform well on one achievement measure tend to perform well on other achievement measures also.

(5) The school variables most heavily related to school outcomes are those concerned with characteristics of the school's personnel, as distinguished from the school's physical facilities, pupil programs and policies, and even personnel expenditures, including teacher's salaries.

(6) Chief among these characteristics of school personnel are the ones that reflect experience in socially imbalanced educational settings.

In 1973, the third volume of the landmark U. S. Office of Education survey of educational opportunity entitled A Study of the Achievement of Our Nation's Students was released (Mayeske, et al., 1973). The purpose of this study was to determine which aspects of a student's background, either

alone or in combination with the kind of school attended, played the largest role in achievement. The student's family structure was one major variable of interest. The major finding in this analysis was that virtually all the differences in achievement associated with racial-ethnic group membership could be accounted for by factors that were primarily social in nature and origin.

> By far the greatest role was found to be closely played by a set of motivational factors that were closely related to family and child-rearing practices. Among these the most important were: the expectations that both the student and his parents had for his school performance; the extent to which they engaged in various activities that were supportive of these expectations; and the student's outlook on life as to the importance of hard work for success and how an education might benefit him. (p. xv)

At the end of 1973, the fourth of the U. S. Office of Education reports entitled A Study of Attitude Toward Life of Our Nation's Students was released (Mayeske, Okada, and Beaton, 1973). This study was designed to investigate various attitude variables and their effect on achievement in the nation's schools. This particular report explored the variable of "attitude toward life." The report was intended to be used by educational researchers who are attempting to study family background and school influences. More specifically, this report attempted to determine: (1) how much of the development of the student's "attitude toward life" was determined by different aspects of his/her achievement and family background, and (2) how the part played by these factors compared with that played by different aspects of the school he/she attended.

An index to determine a student's "attitude toward life" was

constructed to separate those who believe that hard work leads to success as opposed to those who feel luck has a large effect. It also measured a student's belief that people like her/himself had a chance to get ahead. This scale of "attitude toward life" is much like the Internal and External Control scales in the 1975 Statewide Assessment.

The results concluded that the pessimistic outlook on life held by large numbers of minority group students was an accurate reflection of their social reality and would not be changed until discrimination in employment, housing, and schooling was eliminated. Overall, it was found that the student body's "attitude toward life" was far more important than any other school characteristic, and that family background, achievement and school characteristics played a greater role in "attitude toward life" for the minority group students than for the white students.

In 1971, the President's Commission on School Finance contracted with Rand Corporation to perform a critical review of current research findings in education (Averch et al., 1972). This report was viewed as a first step in increasing the potential effectiveness of further interdisciplinary research in education. The primary criterion for analyzing the research was inter-study consistency.

The survey concluded that the state of the research that had been done could best be described by the following five propositions:

> Proposition 1: Research has not identified a variant of the existing system that is consistently related to student educational outcomes.
>
> Proposition 2: Research suggests that the larger the school

system, the less likely it is to display innovation, responsiveness, and adaptation; and the more likely it is to depend upon exogenous shocks to the system.

Proposition 3: Research tentatively suggests that improvement in student outcomes, cognitive and non-cognitive, may require sweeping changes in the organization, structure, and conduct of educational experience.

Proposition 4: Increasing expenditures on traditional educational practices is not likely to improve educational outcomes substantially.

Proposition 5: There seems to be opportunities for significant re-directions, and in some cases, reductions in educational expenditures without deterioration in educational outcomes. (Averch, Carroll, Donaldson, Kiesling, and Pincus, 1972, pp. x-xiii.)

It was also found that, despite the huge volume of educational research, many major gaps exist, a problem which is still with us today. Six major issues were given as possible directions for movement by educational research. They were:

> First, research must examine the extent to which, and under what conditions, learning takes place outside the school. Second, the concept of interactions must be more deeply investigated. Third, the vastly different forms of education that have been suggested as alternatives to the present system should be investigated. Fourth, we must begin to examine educational outcomes over time and on many dimensions. Fifth, the approaches must be merged. Each offers insights not available to those who work in the others. Each has blind spots. There have been far too few attempts to use the strengths of one approach to overcome the weaknesses of another. And, sixth, analysts must recognize the cost implications of their results. (pp. xii-xiv)

In 1974, a report by the Educational Commission of the States entitled Associations Between Educational Outcome and Background Variables was released (Bryant et al., 1974). This report examined some of the literature which showed association between background factors and educational outcomes. The investigation of these studies

demonstrated that one can expect to account for between 20 and 50 percent of the variation in educational outcomes (as measured by test scores) by variation in sex, race, home and family background, and school characteristics, as well as student desires, expectations, attitudes, and motivations. There would be substantial variation within this range depending on the nature of the outcome measures, age group of students, and specific background factors being considered. Below are the factors investigated and the conclusions that were drawn from the several hundred studies reviewed for this project.

Socioeconomic status. From the studies reviewed, it was concluded that the effect of socioeconomic status (SES) cannot be over emphasized. Almost all the major studies reviewed contained some kind of SES measure and concluded that SES alone would account for between 10 and 25 percent of the variance in academic scores. Education of parents, occupation of parents, and items in the home were found to be the most commonly used measures of SES.

Sex. It has been shown that the relationship between sex and achievement scores is based on the age group considered and the particular educational outcomes being studied.

Race. Although race is highly correlated with socioeconomic status, the major articles reviewed have shown that there is an additional component of race that helps explain total achievement variance above that explained by SES measures alone.

Ability. Although in the past, ability has been considered a major predictor of achievement, the studies here have shown that most of the variation in ability measures is accounted for by SES and other

background factors.

School factors. In the past, many studies have shown that differences in schools are very important in explaining variations in educational outcomes. However, because of the high correlation between school and pupil characteristics, most of the differences may be attributed to student background characteristics. The point is that since both factors are so interrelated they should be considered together when explaining the variance in student outcomes.

Motivation/attitude, expectation, and other measures. Several of these intermediate variables (i.e., intermediate between the fixed background of a pupil and his/her educational achievement) have been shown to affect educational outcomes. To interpret these measures as background variables is difficult because they themselves are at least partially an outcome of the educational process and at least partially related to SES measures. If these factors are to be used, information such as family relations, self-concept, ambitions, job attitudes, and plans for further education are important variables.

One of the most controversial and complex issues from recently reported testing studies deals with declines in test score performance. During the past ten to fifteen years, achievement test scores have shown a slight but significant decline at the upper elementary grades and more marked declines at higher grade levels (Harnischfeger and Wiley, 1976). Concerns about declines in test scores have been shared by test publishers, who question the extent to which scaling procedures or the content of the tests may have contributed to the decline, and the public, who are interested in the implications suggested by

declining test scores regarding the quality of education in this country. These concerns have precipitated considerable research attempting to reveal possible factors contributing to the phenomenon. Although trends have emerged revealing some differences between sub-groups of the overall test-taking population (which are distinguished by sex, race, socioeconomic status, and grade level), the general drift has been unmistakably downward. Research experts agree that there has been no simple explanation, but rather a complex, changing pattern of factors which must account for the decline of test scores over the past one and one half decades.

In a 1977 report of the College Entrance Examination Board (CEEB), sponsors of the Scholastic Aptitude Test (SAT), researchers concluded that, through the years, the SAT has maintained its high reliability as an "unchanging standard." In other words, the cause of SAT test score decline cannot be attributed to the test having become more difficult. Harnischfeger and Wiley (1976), who reviewed several widely used achievement and aptitude measures (SAT, ACT, PSAT, ITBS, CTBS, etc.) supported the conclusions of the CEEB research team, i.e., that by and large the tests themselves do not explain the decline of test results.

The CEEB report identified two stages of decline. One, between 1963 and 1970, was characterized by change in the composition of the test-taking population. During those years, the federal government was engaged in efforts to reduce dropout rates in high school and equalize educational opportunity by encouraging and aiding a greater percentage of high school students to attend college. The lower

dropout rate means that more dropout prone students, typically low achieving, graduate from high school and take the SAT test. The 1976 ACT Research Report (Maxey, Wimpey, Ferguson, and Hanson, 1976) cites this also as a highly possible cause of the decline of ACT test scores during the last half of the sixties. The report described it as an increased proportion of lower achieving students taking the ACT test.

The second stage of decline identified by CEEB, from 1970 to 1976, was characterized by a set of six national developments: proliferation of high school elective courses; decreasing seriousness of purpose in the learning process as reflected in automatic grade-to-grade advancement, grade inflation, tolerance of increased absenteeism, reduction of homework, and lowering of college entrance standards; increase of television viewing; changing structure of the family; social turbulence of the sixties and seventies; and diminution of learning motivation. The Harnischfeger and Wiley report generally concurred with this assessment but placed somewhat more emphasis on the role of the educational system in affecting the decline of achievement test scores.

All the reports mentioned stress the complex interrelations of the possible factors. They unanimously concur that further research is necessary to extract patterns of causality which may lead to recommendation for changes in the educational system and in the tests themselves.

The decline in college entrance examination test scores as measured by the ACT results appears to have terminated. Scores have

risen both nationally and in the State of Utah during 1977 and 1978 (ACT, 1977, 1978). Evaluation of the Emergency School Aid Act (ESAA), as reviewed by Coulson (1978), is related to state assessment because methodological issues were as important as the actual findings and because it illustrates difficulties which characterize many large-scale measurement studies. The ESAA evaluation was concerned primarily with two programs: the Basic Program (which supplied federal funds to assist school districts in desegregating) and the Pilot Program (which supplied federal funds to assist schools with minority compensatory education projects). The evaluation, particularly for the Basic Program, attempted to measure: 1) reading and mathematics achievement by students, 2) reducation in segregation in ESAA-funded districts, and 3) improved race relations of students and faculty. The study used a randomized experimental design, with control/treatment schools matched within districts. Achievement was measured by standardized tests and race relations by a survey.

The major findings showed that the Basic Program had resulted in greater student achievement at the elementary school level in both reading and mathematics. There was no reduction in segregation, since funded school districts turned out to be desegregated already. Race relations did not appear to change; however, this result can be attributed to the use of a race-relations survey that was technically unacceptable (low reliability, minimal variability across administrations, items with socially desirable response options), partly due to the need for political acceptability. In addition, the evaluation showed that students' basic achievement tended to be greater in schools

which 1) had a principal who exercised strong administrative leadership, 2) had greater program funding and instructional resources, 3) provided instruction with a high degree of focus and structure, and 4) made visible efforts to promote equal educational opportunity for all students.

However, the findings also pointed to several methodological issues. First, there should have been some measurement of how well the treatment was implemented. It turned out that the "treatment" schools often did not actually receive more funding than the "control" schools, even though the treatment was supposed to be "more funding." Secondly, the gains in student achievement under the Basic Program did not become evident until the third year of implementation; judgment based on the first two years would have been premature. Taken together, these two points strongly urge that evaluations of educational projects should focus for the first one or two years on formative data concerning the degree of implementation, and then assess outcomes later on. In addition, measures of student achievement within a specific program need to be more criterion-oriented toward mastery of specific learning objectives, rather than merely designed to indicate student standing compared to a normal reference group. This is particularly important since most normal reference groups do not include large numbers of the types of students involved in compensatory education programs.

Summary

The Utah Statewide Educational Assessment program has capitalized on studies in other states and the national level that have been concerned with the effectiveness of the educational system in providing a quality education for students. Important implications and recommendations from these other studies have been used in the formulation of this program.

Because of the findings of past studies, this program investigated variables that are not typically found in statewide assessment studies, such as educational process measures. The emphasis on measuring the development of students on the Social Maturity, Productive Maturity, Emotional Maturity, and Aesthetic Maturity goals is also not typical of other state assessment programs.

CHAPTER III

DEVELOPMENT AND ADMINISTRATION OF MEASUREMENT INSTRUMENTS

Basic Rationale

The Goal-Based Nature of Utah Statewide Educational Assessment

The educational outcomes examined in the Utah Statewide Educational Assessment were largely guided by the set of state goals formalized in 1972. A brief examination of the educational assessment programs of other states and national assessment programs shows that the specific content and strategies of assessment programs vary widely. Some assessment programs are completely based on a nationally published, norm-referenced, standardized test. Others focus on measuring educational performance with respect to very specific educational objectives and do so through the use of test items which have been termed criterion-referenced; this means that the interpretation of results is based on the test content rather than a comparison to a national or local norm group. Both the standardized test approach and the objectives-based or criterion-referenced measurement approach to assessment tend to measure educational performance across a rather narrow band of possible educational outcomes. Typically, these have centered around classical educational curriculum areas such as mathematics, reading, science, and social studies.

A few programs have gone beyond these traditional academic areas in attempting to measure student outcomes related to broad educational goals. As stated earlier, the present assessment program is in this general class. The decision to measure educational outcomes suggested by goals such as those Utah has established is based on two major assumptions: (1) an assessment program should measure performance in a wide range of areas reflecting the competencies, knowledge, and attitudes which the educational system works to foster; and (2) measurement instruments, with credible scientific properties, can be identified or constructed to accomplish the measurement suggested by broad educational goals. The first assumption is largely a matter of philosophy, while the second assumption can be and was, as part of the assessment program, tested and psychometric evidence provided.

All of the above does not deny the importance of other approaches to assessment. Indeed, segments of the other two basic approaches have been included in this approach to assessment. Standardized, norm-referenced tests have a legitimate place in educational measurement; they do provide information about comparative levels of achievement which educators and the general public want and need. Likewise, specific objectives-based or criterion-referenced approaches to measurement have their own utility. Certainly objectives-based measurement is by far the most useful approach to testing for classroom teachers as they make day-to-day decisions about student needs and attainment of educational objectives. The notion of measuring

attainment of very specific objectives has a place in measuring the performance of larger educational units as well.

The goal-based measurement of this project, while paying attention to what has been measured traditionally through achievement tests, goes beyond the classic achievement areas to obtain data on other crucial areas of educational endeavor. The measurement related to the goals which were presented in Chapter I is not purported to be a comprehensive assessment of each of the specified goals. Even a casual examination of these goals demonstrates that they are too broad to be measured exhaustively, and, in most cases, lack the specificity which might be provided in the form of more restrictively defined objectives. Thus, the approach here focused on analysis of the goals and their related general objectives with subsequent identification of several key measurement areas which might serve as indicators of educational performance with respect to each goal.

A Research Approach to Statewide Educational Assessment

Utah Statewide Educational Assessment endeavored to measure more than student performance alone. During the planning phase of the study, a thorough review of related literature, including the Averch et al. (1972) and Mayeske et al. (1973) studies, supported the authors' conviction that the measurement of student outcomes must also be accomplished with measurement of key factors descriptive of conditions and educational procedures which influence performance. Thus, besides the goal-oriented student performance measures included in the study, other important classes of variables

were measured. These included educational process measures, such as teacher emphasis on reinforcement of self-concept and degree of student classroom participation; other variables such as class size; and student characteristics, such as race, socioeconomic status, and sex.

A research design which provides a cumulative data base can take advantage of the data collected by making longitudinal and present comparisons, thus providing greater perspective for the results. The results of such research can provide broad implications for improving the educational system. The Utah approach to assessment allowed for a more detailed examination than has been accomplished previously within the state, not only of levels of performance but also of important demographic and educational process factors which are related to levels of performance.

Identification and Construction of Measures

Selection of Existing Measurement Devices

The 1978 assessment benefitted from the psychometric developmental effort expended in the 1975 study. This experience enabled the researchers to make decisions concerning new and existing instrumentation. Scales from existing published standardized measurement devices were included in the Statewide Educational Assessment. These were the mathematics subtests (which were used in the 1975 study) and the reading subtests (which were not) from the Comprehensive Tests of Basic Skills (Form S, Levels 2 and 4), published by

McGraw-Hill. In the judgment of the present authors and program specialists of the State School Office, these measures did an adequate job of measuring these domains and were developed relatively recently--1974. As stated previously, maintaining measures used in 1975 permitted comparisons to be made and assessments of changes that may have occurred. The decisions to include these scales were based on considerations of the content measured by the tests and their psychometric properties, such as the demonstration of various kinds of reliability and empirical validity.

Construction and Refinement of New Measures

A list of the measures used in the 1978 study is presented in Exhibit 1. The majority of the measures presented in Exhibit 1 were based on instruments specifically constructed to measure aspects of the Utah Goals. Most of the measures of the Emotional Maturity, Social Maturity, Aesthetic Maturity, and Productive Maturity Goal areas were developed specifically for the 1975 Utah Statewide Educational Assessment; information concerning these scales is presented in the 1975 reports. The educational process and certain other measures were constructed through studies prior to 1975 by IBRIC staff and were subsequently revised and refined for application in Statewide Assessment. Other scales, including Art Achievement and the Economic Awareness and Consumer Competence Scale, were specially constructed for the 1978 study. During the early stages of development of the instruments for each of the goal areas, the appropriate State School Office curriculum specialists were consulted.

Exhibit 1

Measures Used in the 1978 Utah Statewide Educational Assessment

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I. MEASURES FROM STUDENTS

A. INTELLECTUAL MATURITY GOAL: From the Comprehensive Tests of Basic Skills, Form S, Levels 2 and 4, the CTBS Mathematics and Reading sections were administered at grades 5 and 11.

B. EMOTIONAL MATURITY GOAL: Three positive indicators--Academic Self-Concept, Self-Acceptance, and Autonomy--at both grade levels.

C. SOCIAL MATURITY GOAL: Peer Relations at grades 5 and 11 and Extra-Curricular Activities at grade 11.

D. AESTHETIC MATURITY GOAL: Art Achievement, Music Achievement, and Art and Music Activities at both grade levels.

E. PRODUCTIVE MATURITY GOAL: Independent Development at grades 5 and 11; Career Awareness and Exploration, Career Development Experiences, and Economic Awareness and Consumer Competence at grade 11.

F. EDUCATIONAL PROCESS: Individualization of Instruction, Reinforcement of Self-Concept, Classroom Participation, Development of Career Talents, and Expectations at grade 5 only.

G. SUPPLEMENTARY MEASURES: Enjoyment of School, Educational Orientation, School Experience, Creativity, Math Background, Reading Background, Demographic Data, Socio-Economic Status--Financial, Socio-Economic Status--Educational, and Socio-Economic Status--Total at both grades.

II. MEASURES FROM PRINCIPALS AND RECORDS

A. PRINCIPAL QUESTIONNAIRE: School population characteristics, Title 1 versus non-title 1, architecturally open school versus other, etc.

B. RECORDS: School size and location (urban, suburban, rural).

Selection of the Sample

The students who participated in the 1978 Utah Statewide Educational Assessment project were in the 5th and 11th grades. These grades were chosen because they are close to the end of the elementary and secondary levels and because the students would typically still be in the same school settings a year later. The participating students and schools could then benefit from the feedback given to schools by the project.

The basic sampling approach which was employed involved the selection of a stratified random sample of schools. Thus, a sample of elementary and high schools was selected which was representative of the elementary and high schools in the state. These schools were chosen on a stratified random basis, so that they were typical of the total population of schools. Selected for the sample were 64 elementary and 30 high schools.

At the 5th grade, all students were tested in each of the selected elementary schools, providing screened data on approximately 4,000 students. This sample size was selected to permit analyses at the individual student, classroom, and school levels.

At the 11th grade, additional complexities were involved. The 1975 study confirmed that isolating classroom effects on student outcomes was difficult in state assessment studies, since students at the 11th grade rotate across classes. Thus, only the individual and school levels of analysis were relevant on the secondary students. In view of this, a within-school sampling strategy was developed to

provide reasonably stable means for school feedback reports, but not to burden the study with relatively expensive data collection and data processing procedures. Thus, a set of decision rules was adopted such that, in schools with 110 or fewer 11th grade students, all 11th grade students were tested. In larger schools, a minimum of 110 11th grade students were tested, or 20% of the 11th grade student population, whichever was larger. To select students within each school, a roster of 11th grade students was obtained, the appropriate number of students was selected using a random number table, and the schools were sent the list of students selected. This permitted the feedback report for each school to be based on approximately 100 or more randomly selected students, depending on how many survived the data quality control screens. The procedure provided data which was reasonably accurate in representing school means while still maintaining economy considerations. This strategy resulted in screened data on approximately 1800 students at the secondary level, which provided substantial accuracy on statewide data concerning educational effectiveness. To get representative data for the state as a whole, each school mean was weighted by the population number of 11th grade students in the school and then aggregated across all the schools tested. This procedure took advantage of all data to obtain the statewide means on the measures studied.

The sample was evaluated on the basis of a number of variables that were of importance or interest to the project. Included among these variables were architecturally open versus closed schools,

Title I versus non-Title I schools, size of school, and type of community within which the school was located (urban, suburban, rural). The random samples of 5th and 11th grade schools selected were generally comparable to the population on all variables, although slight differences were obtained on the size of school measure for the 11th grade schools. The procedure described above for weighting of school means helped to overcome the slight tendency of the sample to be overrepresented by small schools.

Naturally, not very district in the state had schools drawn for the sample, since the project was not designed to make district by district comparisons. The results of the project cannot be used to compare the students from one district to another, nor can the results from the students sampled in one district be used to represent all the students within that district. The results found in the project can be used to indicate the general level of effectiveness of the educational system within the State of Utah as a whole.

The numbers of students who took each part of the test battery can be found in Appendix A. Data were available on differing numbers of students for the various measures because the battery was administered across a number of school days, with not all students present on all days, and because some responses of some students were rejected by computer quality control screens.

Administration of the Measures

The administration of the Comprehensive Tests of Basic Skills (CTBS) and the custom-built test batteries took place primarily during the last two weeks of April, 1978. The last two weeks of April were specified for the administration, since May is often filled with activities related to the end of the school year and the student responses could be less reliable because of various extraneous events. The dates of administration corresponded quite directly to the dates of administration of the 1975 assessment, so that comparisons can be made across the two studies.

The necessary test administration time for the entire battery was approximately 5 hours. The elementary schools were asked to divide the administration into time blocks spread over five days, and the high schools were asked to divide the testing into at least two segments.

Test Administrators

Since school counselors have had training in test administration and would understand the need for standardization, they were the logical choice for conducting the testing sessions at the high school level. For elementary schools, substitute teachers regularly used by the schools were chosen to administer the battery. Regular classroom teachers were not used as test administrators to avoid the possibility of any inadvertent influence on the responses of the students. This also would have imposed a burden on classroom teachers who might

typically have little experience in standardized testing procedures or time for training. Use of substitute teachers increased the standardization of the administration.

From a group of substitute teachers normally used by the school, at least two were nominated by each principal or liaison person as being especially competent. The substitute teachers so nominated were then called and asked if they could serve as administrators of the battery and assist in arranging with the principal for the time and place of administration.

Training of Test Administrators and Distribution of Materials

Four workshops were held in various locations throughout the state for those people who were to serve as test administrators. Each workshop lasted approximately two hours and was designed to: (1) acquaint the administrators with the project and its goals and objectives; (2) establish the procedure to be followed in the administration; (3) answer any questions that the administrator might have about the project; and (4) distribute the materials to be used. Since the procedure to be followed during the administration varied by grade level, and since the secondary school workshop was generally concerned with a sampling problem, the two groups were separated during the workshop. This allowed Assessment staff to work with smaller groups of administrators and to give more personal attention to any questions that administrators might have.

The four workshops were held in Salt Lake City, Ogden, Provo, and Beaver, which meant that some administrators, as well as project

staff, had to travel some distance to attend. The locations of the workshops represented a compromise between requiring all administrators to attend workshops at one central location and having the staff travel to each participating district.

The testing materials were distributed to the administrators at the workshops. The number of materials distributed was based on the number of students at the specified grade levels in the schools as reported by the district liaison person. Some minor inaccuracies were found in this number, due to transfers not reported to district offices. Separate administration manuals were prepared for the 5th and 11th grade administrators, and these were distributed during the workshops. The manuals were designed to lead the administrators step by step through the whole testing procedure. Following the administration manual increased the likelihood of standardized testing procedures for all schools.

The reading level of the 5th grade battery was determined to be too high for a small percentage of the students who were reading below their grade level. So that the information obtained would not be influenced by reading ability, the manual and the workshops specifically instructed the 5th grade administrators to read the questions, other than the CTBS portion of the battery, aloud to the students. This helped to ensure that all students understood the questions and held constant the time required to take the battery both within and across schools.

Scheduling of Test Administration

Prior to the workshops for test administrators, each superintendent of schools in districts with schools in the sample had been informed by a letter from State Superintendent Walter D. Talbot when the Statewide Assessment was going to take place, that IBRIC was to be involved, and that the district superintendent would be kept informed of the progress of the project. In this letter, each district superintendent was asked to name a person within the district's organizational structure who would act as liaison between the district and the Statewide Assessment program. The liaison person was then informed of the schools in the district which had been selected as part of the sample and asked to notify the principals of those schools of their involvement in the assessment. In addition, assessment staff communicated directly with participating school principals to provide them with an outline of project activities, time requirements, etc.

After the training workshops, each test administrator contacted the principal of the school to which he or she was assigned to make final arrangements for testing. At the completion of testing, each administrator was to return the materials to IBRIC or to the district liaison person.

In general, the comments received from principals, teachers, and test administrators indicated that the testing went very smoothly, considering the numbers of students and schools involved. The number of students who responded to the total battery is a further indication of this. Further comments suggested that the workshop sessions were adequate in providing the training that was necessary for the

administrators, and that the manuals were complete and sufficient. Standardization of the testing procedure appeared to be consistent across locations. No administration problems of sufficient magnitude were identified that would necessitate caution in the interpretation of the results.

Personal Privacy

On the test booklet that was given to each student, and in the test administrator's manual, the following statement was emphasized and was read simultaneously by the administrator and the students. "If there are a few questions, which for personal reasons, you do not wish to answer, you may leave them blank." Each student was allowed to use his/her own discretion in determining the applicability of each item. No item within the test battery was judged to be discriminatory, demeaning, or derogatory. However, recognizing that a student might interpret an item in such a manner, a heavy emphasis was placed on this statement and the student's right to choose not to answer specific questions.

To ensure the confidentiality of the responses, each student was given a code number to use on the answer sheet. The students had to put their names on the CTBS answer sheet, because individual achievement levels for the Reading and Mathematics tests were supplied to the schools. These tests complemented those included in the regular testing procedures of the participating schools and made better use of the data collected for the Statewide Assessment. However, after the data were merged by IBRIC, student name was no

longer on any records. Except for the CTBS Mathematics and Reading achievement scores, no individual student scores were reported in any way to the schools. On all other measures, school level data (i.e., average scores for all students participating from a given school) were used for all the feedback reports to schools. No student names have been retained as part of any record of the project other than those supplied to the schools in conjunction with the Mathematics and Reading scores.

Data Processing and Analyses

Preparation and Initial Processing

After the testing was completed, each student placed his/her materials in a separate envelope. These materials were not seen by the teachers or other personnel at the school. These envelopes were returned to IBRIC, either by test administrators or through the liaison person. Upon receipt at IBRIC, the materials were removed from the envelopes, sorted, and given a preliminary check of code numbers. The CTBS answer sheets were assigned special coding and scored by the Data Processing Division of the State School Office, who provided feedback for the CTBS Mathematics and Reading tests for each individual student in each school and average data for each school. They also provided a computer tape from which other types of analyses of the data for the Intellectual Maturity Goal area and their interrelationships with other scales could be obtained.

The answer sheets for the custom-built scales were optically scanned and the data prepared for processing on the University of Utah Computer Center Univac 1108. The first statistical processing was screening of the major sections of each student's responses for bad data. Of these screening procedures, the first involved counting the number of missing or "illegal" responses made by an individual in each section of the battery. Illegal responses were those which, though available on the answer sheet, did not correspond to an available alternative to the question as printed in the battery. If more than 10% of the response positions on a non-cognitive section in the battery were blank or illegal, that portion of the battery was deleted altogether for that student.

The second screen involved summarizing each major section of the test battery to ensure that students answering sincerely would be retained but most cases of purely random data or students answering in an extremely rigid manner would be deleted. For the other non-achievement sections of the battery, if the student had data deleted for two major sections so screened, he/she was probably not answering sincerely and thus should have the data for the remaining, non-achievement section of the battery deleted also. Following this screening, the data from the custom battery were ready for merging with the CTBS data and for the development of the final scoring procedures and analyses.

Statistical Analyses

The scoring keys for all scales used in the 1975 study were

carried over to the 1978 study, with the exception of Art Achievement which was newly constructed for 1978. The achievement key and keys for other new scales were evaluated through item analysis techniques to make sure they were effective measures. The final set of scoring keys was then applied to the responses of all the students in the total, statewide sample. The resulting scores, plus those for the CTBS tests, were then analyzed to produce the results discussed later in this report. The analyses performed included computing the means, standard deviations, and intercorrelations for all the scales for the total 5th grade and 11th grade samples. Item alternative response frequencies at each grade level were also computed.

As part of the data collection, special coding, defining district, school, and homeroom class membership, was affixed to each student's record. This coding allowed combining individual level data for classroom averages or school averages.

For the 5th grade, combined student data were merged with the data obtained from the Principal Qustionnaire (e.g., a crude size measure, whether or not the school could be characterized as rural, suburban, or urban, etc.). Again, the relationships between the combined student data and the school variables were analyzed, principally through the computation of intercorrelations.

Organization of Results Chapters

In the five chapters which follow, each goal area is treated

separately. Each chapter consists of a statement of the goal, a description of the scales used in the area, and a presentation of the results obtained on each of the measures to provide information about the levels of performance and activities of Utah students included in the study. Information concerning the measures used throughout the study can be found in Exhibit 1 and in the appropriate chapter dealing with the corresponding goal. This descriptive information about level of performance is followed by a description of how a key measure from each goal area was related to other measures included in the study. The relationships between the key measure for each goal area and all other measures will be presented for the 5th and 11th grade students. For the analysis of classroom process on 5th grade students, interrelationships among the classroom means for the process measures and outcome measures will be presented. These results will be followed by a discussion of school level data (urban, rural, etc.) on 5th and 11th grade students.

The five goal-based results chapters are followed by chapters on Enjoyment of School, Educational Process Measures, and School Classifications and Demographic Chracteristics. These latter chapters are also organized by descriptive findings and relationships.

The study was descriptive and correlational in nature, rather than experimental. From this kind of design, no claims of causality can be made. Additional analyses and extended research, much of it longitudinal and experimental in nature, would be necessary to permit more deterministic conclusions. Caution must also be observed in making inferences from the sample studied to the Utah

population as a whole. While all available data indicate that the sample of schools was generally representative of all Utah schools, caution must be observed in making inferences about specific schools, classes, or students.

Even with these qualifications, the 1978 Utah Statewide Educational Assessment provided substantial information about student performance on a variety of measures, the interrelationships of student outcomes and teaching process measures, and other characteristics of concern to Utah educators and the general public.

CHAPTER IV

RESULTS FROM THE INTELLECTUAL MATURITY GOAL AREA

> A person's intellectual maturity is exemplified by a continuing desire for understanding, a continuing interest in current problems, a continuing accumulation of knowledge, and an increasing ability to use his or her rational powers. (Utah State Board of Education, 1973)

The general objectives for Intellectual Maturity include assimilating data from a variety of sources and experiences, objectively evaluating these inputs, altering the student's attitudes and behavior, and contributing to society by using this new knowledge.

Description of the Measurement Instruments

After an extensive review of available measuring devices, which included considerations of item content, technical characteristics (such as reliability and validity), testing time, costs, and compatibility with the Utah Intellectual Maturity Goal, the Comprehensive Tests of Basic Skills (CTBS) Form S, Levels 2 and 4, were selected for use in the Utah Statewide Educational Assessment. One of the important considerations in the selection of the CTBS was the classification of items into intellectual process and subject content categories, which provided the means for obtaining additional information about the performance of Utah students. The sections of the

CTBS selected were Mathematics and Reading. The mathematics portion yielded scores for Mathematics Computation, Mathematics Concepts, and Mathematics Applications, in addition to a Total score. The reading portion yielded subscores for Vocabulary and Comprehension. In addition to the major subscores, item content categories were available to provide supplementary diagnostic information about the performance of the students.

As part of the 1975 assessment, judgments from 5th and 11th grade teachers were obtained regarding the importance of the specific content of the CTBS Mathematics tests. These teachers were asked to rate each content and process category on its relative importance, using a standard rating scale ranging from "not very important" to "extremely important." In general, these categories were rated as "very important" by both 5th and 11th grade teachers, indicating that the content of the Mathematics achievement test was viewed as important by Utah teachers. Similar judgments were attained for the reading tests in the 1978 assessment through a careful review by reading specialists and psychologists.

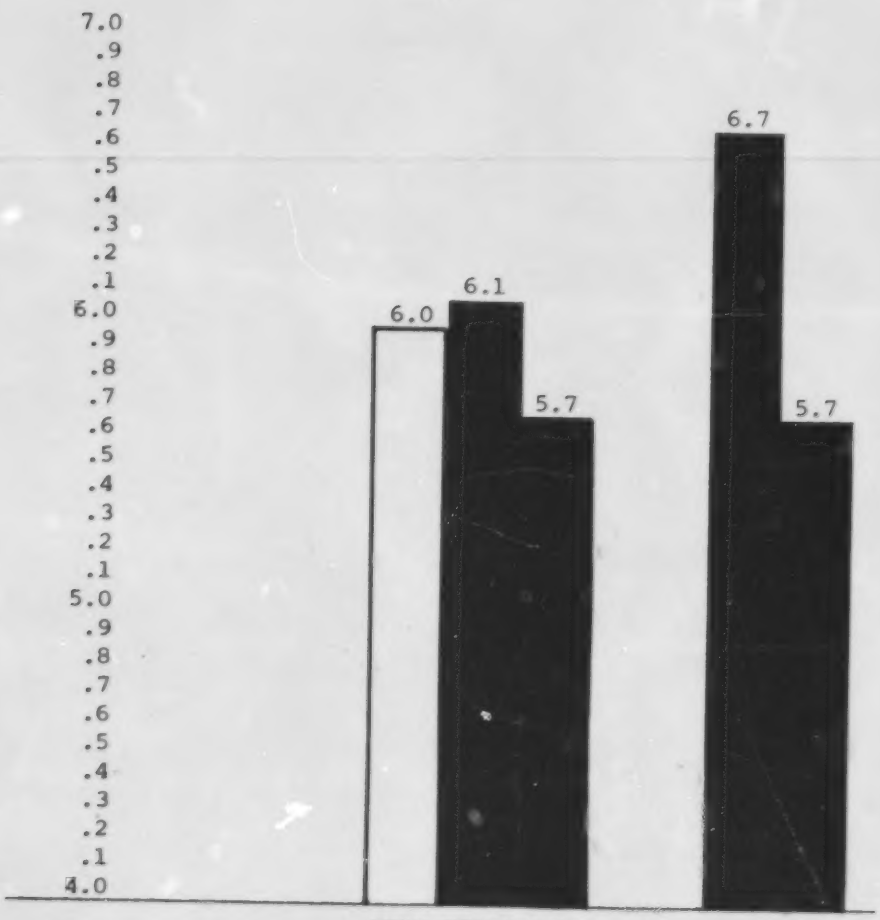
Comprehensive Tests of Basic Skills Results for Grade 5

Total Score Results for Mathematics and Reading

The total score Mathematics performance of Utah 5th grade students tested in 1975 and 1978, and the performance of the national standardization sample are compared in Exhibit 2. Also shown are the Reading Total score results for the 1978 Utah sample

Exhibit 2

Utah vs. National Results on Comprehensive Tests of Basic Skills Mathematics and Reading Total Scores, Grade 5



	UTAH 1975	UTAH 1978	NAT'L NORM	UTAH 1978	NAT'L NORM
MEAN RAW SCORE	63.5	65.0	61.4	58.3	51.7
PERCENT OF CORRECT RESPONSES	65%	66%	63%	69%	61%

and the national standardization sample. Median grade equivalent scores (the point below which 50% of the students scored) were used to allow comparisons to the national sample for all score areas. The national grade equivalent score was 5.7, reflecting the median performance of 5th grade students at the seventh month of their academic career.

The results showed slightly higher levels of performance for the Utah students tested in 1978 compared to the national standardization group and to the Utah students tested in 1975. On the CTBS Mathematics Total score, the 1978 Utah sample performed at slightly above the 6th grade level of the national sample. For the total Reading score, the difference between the Utah results and the national standardization sample was marked. Utah students clearly surpassed the national sample; the comparative grade equivalents were 6.7 for the Utah 1978 sample versus 5.7 for the standardization sample.

Additional data are presented on the lower part of Exhibit 2 to provide more information about the standings of the Utah 5th grade students in relation to the national standardization sample. To illustrate, the mean raw Mathematics Total score indicates that the 1978 Utah sample answered approximately four more questions correctly than did the national sample. For Reading, the Utah sample answered about 7 more questions correctly than did the national sample.

A similar picture of higher levels of performance by the Utah students is obtained by considering the percent of correct responses shown at the bottom of the exhibit. For total Mathematics, the 1978

Utah sample answered 66% of the questions correctly, the 1975 sample answered 65% correctly, and the national standardization sample answered 63% of the questions correctly. As stated above, the results were more marked for Reading: 69% of the questions were answered correctly by the Utah sample, compared to 61% by the national norm group.

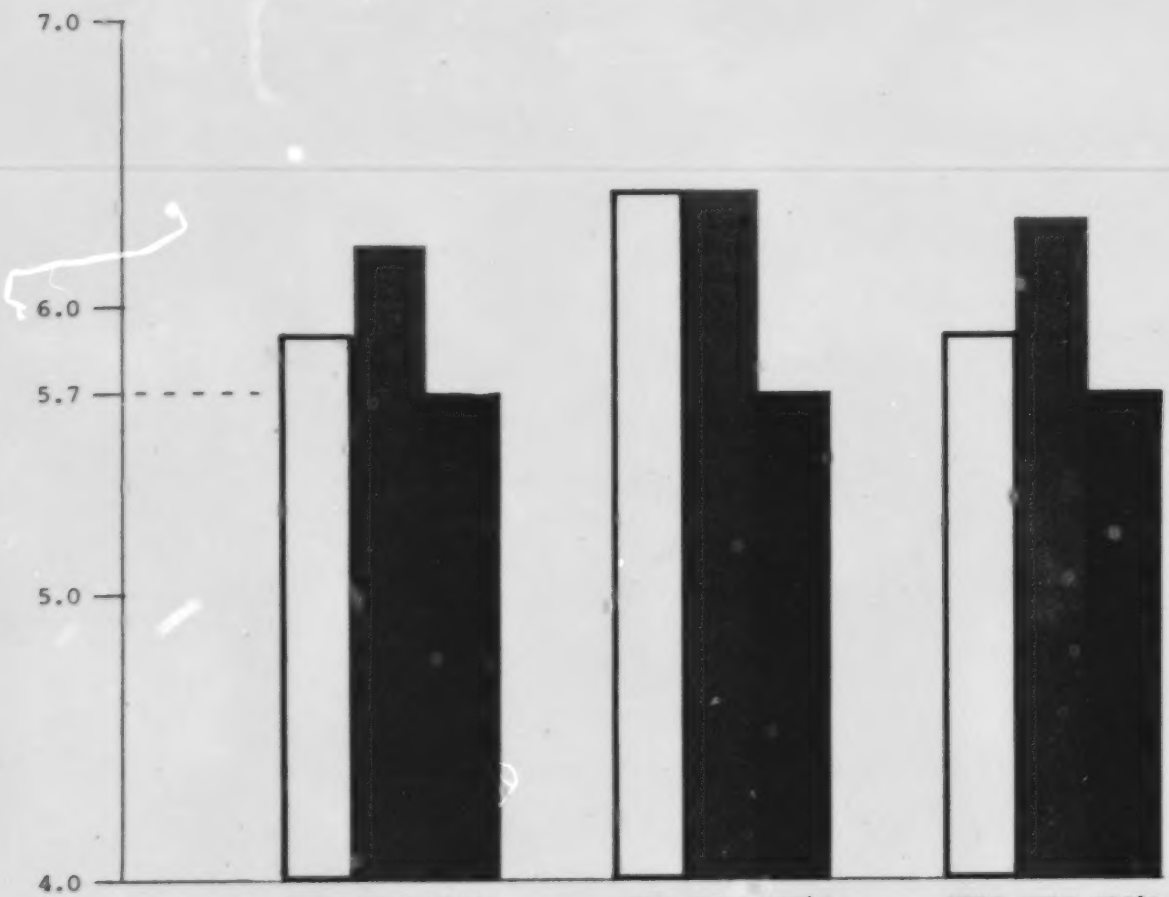
Subscore Results for Mathematics

Exhibit 3 presents the results for the major subscores of the CTBS Mathematics tests for the 1975 and 1978 Utah samples and the national standardization sample. The results clearly indicate that the 1978 results were equal to or surpassed those obtained in 1975 and consistently exceeded the national results. In Mathematics Computation and Mathematics Applications there were gains in 1978 compared to 1975; for Mathematics Concepts, the 1978 results indicated a continued and equally high level of performance.

In the lower part of the exhibit, information is presented on the mean raw score and percent of items answered correctly for the Mathematics subscores. To illustrate, the Computation raw score mean for the Utah students was 32.2 in 1975 and 33.2 in 1978, whereas the national sample mean was 31.3; these results indicate that, on the average, the Utah students in 1978 answered approximately two more questions correctly than did the national sample. As in the previous exhibit, the last row in the exhibit presents the percentage of questions answered correctly.

Exhibit 3

Utah vs. National Results on Comprehensive Tests of Basic Skills Mathematics Subscores, Grade 5



	MATHEMATICS COMPUTATION			MATHEMATICS CONCEPTS			MATHEMATICS APPLICATIONS		
	UTAH 1975	UTAH 1978	NAT'L NORM	UTAH 1975	UTAH 1978	NAT'L NORM	UTAH 1975	UTAH 1978	NAT'L NORM
MEAN RAW SCORE	32.2	33.2	31.3	15.8	16.1	15.1	15.1	15.6	14.7
PERCENT OF CORRECT RESPONSES	67%	69%	65%	63%	64%	60%	60%	62%	59%

Results on Specific CTBS Mathematics Content Categories

Further results from the CTBS Mathematics section can be found in Exhibit 4, which presents the average percentage of questions answered correctly at grade 5 for each of the specific content categories within the CTBS Mathematics test. As expected from the major score results, the 1978 Utah sample scored slightly higher than the national and 1975 Utah samples in most of the content categories. For the Mathematics Computation-Operations areas, the differences between the 1978 Utah results and those of the national standardization sample were slight on Addition and Subtraction, but more marked on Multiplication and Division. In the case of Division, the Utah 1978 5th grade students answered 56% of the questions correctly, while the national sample answered only 50% of the same questions correctly. In 1975, 58% of the division questions were answered correctly; this was the only content area where there was a decline from 1975 to 1978.

On Mathematics Concepts and Applications, the Utah students performed at equivalent levels in 1975 and 1978, with both samples being slightly higher than the national norming sample. The general impression from Exhibit 4 is that the Utah students are improving in mathematics and are still significantly higher than the norm sample.

Subscore Results for Reading

In Exhibit 5, the results for the Reading Vocabulary and Reading

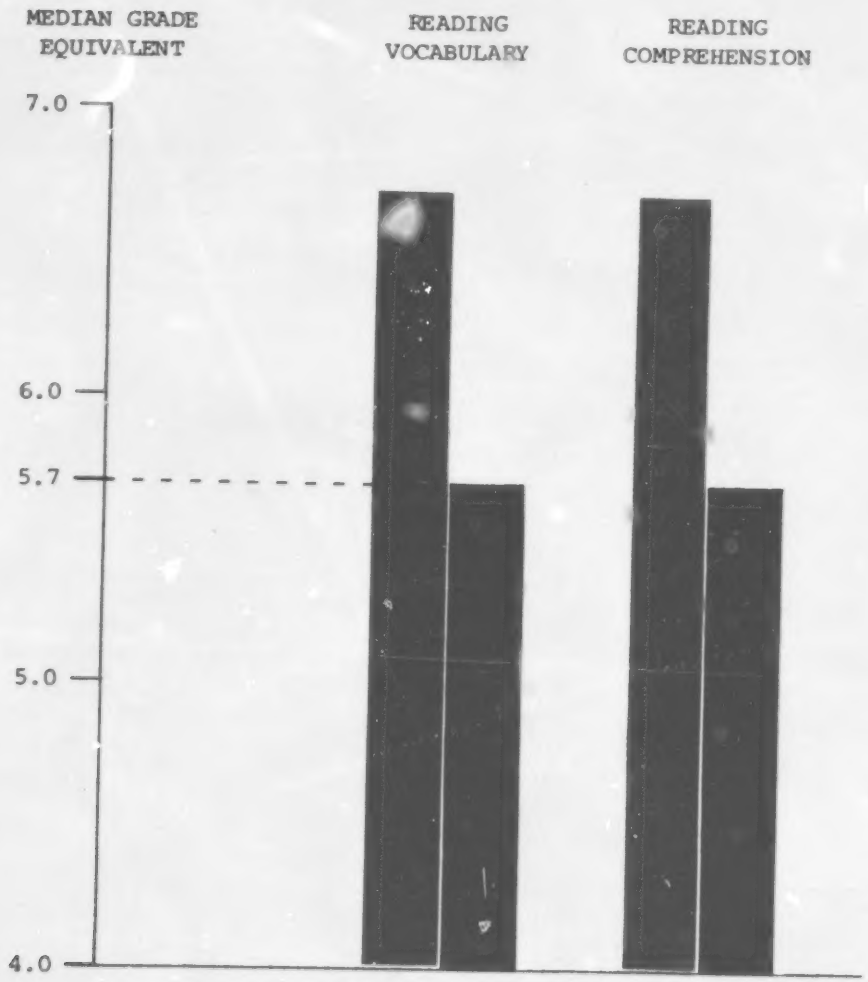
Exhibit 4

1978 Utah vs. National Percent of Correct Responses for CTBS Mathematics Test by Content Category, Grade 5

CONTENT AREA	PERCENT OF CORRECT RESPONSES		
	UTAH 1975	UTAH 1978	NAT'L NORM
MATHEMATICS COMPUTATION - OPERATIONS			
Addition (1, 2, 3, & 4 digit, column, like fractions, etc.)	77%	78%	75%
Subtraction (mixed number, whole number, like fractions, decimal numbers, etc.)	74%	75%	72%
Multiplication (2, 3, & 4 digit, proper fractions, etc.)	67%	68%	63%
Division (no remainders, money, whole number by fraction, decimal numbers, etc.)	58%	56%	50%
MATHEMATICS CONCEPTS AND APPLICATIONS			
Number Systems/Properties (equivalent forms, factoring, reciprocals, etc.)	65%	65%	61%
Sets (union, intersection, number property, fractional property, etc.)	63%	64%	63%
Geometric Relationships (curves, angles, planes, measure given figures, etc.)	63%	64%	63%
Measurement (convert & compute measures of time, length, money, liquid, weight, etc.)	61%	62%	57%
Mathematical Sentences (solve for an unknown in equations and mathematical sentences)	61%	62%	60%
Graphs (interpret information on a circle or line graph)	68%	70%	66%
Problem Solving and Reasoning (missing terms in a sequence, needed information, etc.)	62%	63%	59%

Exhibit 5

1978 Utah vs. National Results on Comprehensive Tests of Basic Skills Reading Subscores, Grade 5



	READING VOCABULARY		READING COMPREHENSION	
	UTAH	NAT'L 1978 NORM	UTAH	NAT'L 1978 NORM
MEAN RAW SCORE	28.4	24.6	29.8	27.0
PERCENT OF CORRECT RESPONSES	71%	62%	66%	60%

Comprehension subscores are presented for the 1978 sample and for the national standardization sample. On both subscores, the Utah sample clearly surpassed the national sample. The results generally speak well for reading programs throughout the state compared to the national average even though further progress on specific reading objectives, as indicated in the 1975 Utah State Board of Education study, is appropriate.

Supplemental information about the performance of Utah's 5th grade students is presented at the bottom of the exhibit. In mean raw scores (i.e., the number correct) and percent correct, the Utah students clearly exceeded the national average.

Results on Specific CTBS Reading Content Areas

Information concerning 5th grade reading performance in specific content categories is presented in Exhibit 6. This information can help clarify areas of strength and weakness in Utah students compared to the national sample. The results, however, revealed a rather uniform pattern of superior performance for the Utah sample. The area of greatest strength over the national sample was Reading Vocabulary, while Conclusions and Structure/Style were the areas in which Utah students had somewhat less of an advantage.

Comprehensive Tests of Basic Skills Results for Grade 11

Total Score Results for Mathematics and Reading

Comparisons among the 1975 and 1978 Utah 11th grade samples

Exhibit 6

1978 Utah vs. National Percent of Correct Responses for CTBS Reading Test by Content Category, Grade 5

CONTENT AREA	PERCENT OF CORRECT RESPONSES	
	UTAH 1978	NAT'L NORM
READING VOCABULARY		
Recall of Synonym (synonym of a particular word in a phrase)	71%	62%
READING COMPREHENSION		
Literal Recall (who, what, where, when questions about facts contained in a passage)	76%	70%
Rewording (answer questions by choosing paraphrased or reworded material)	68%	60%
Context Clues (word meaning from context)	74%	67%
Main Idea (identify author's topic or purpose, summarize central thought or moral, select best title)	63%	57%
Descriptive Words (describe physical attributes, emotions, or qualities of things or people presented in a passage)	60%	54%
Conclusions (cause-effect relationships, conclusions based on stated or implied facts)	61%	56%
Structure/Style (punctuation, function words, tense; identify figurative language, interpret symbols, understand method of conveying viewpoint)	61%	56%

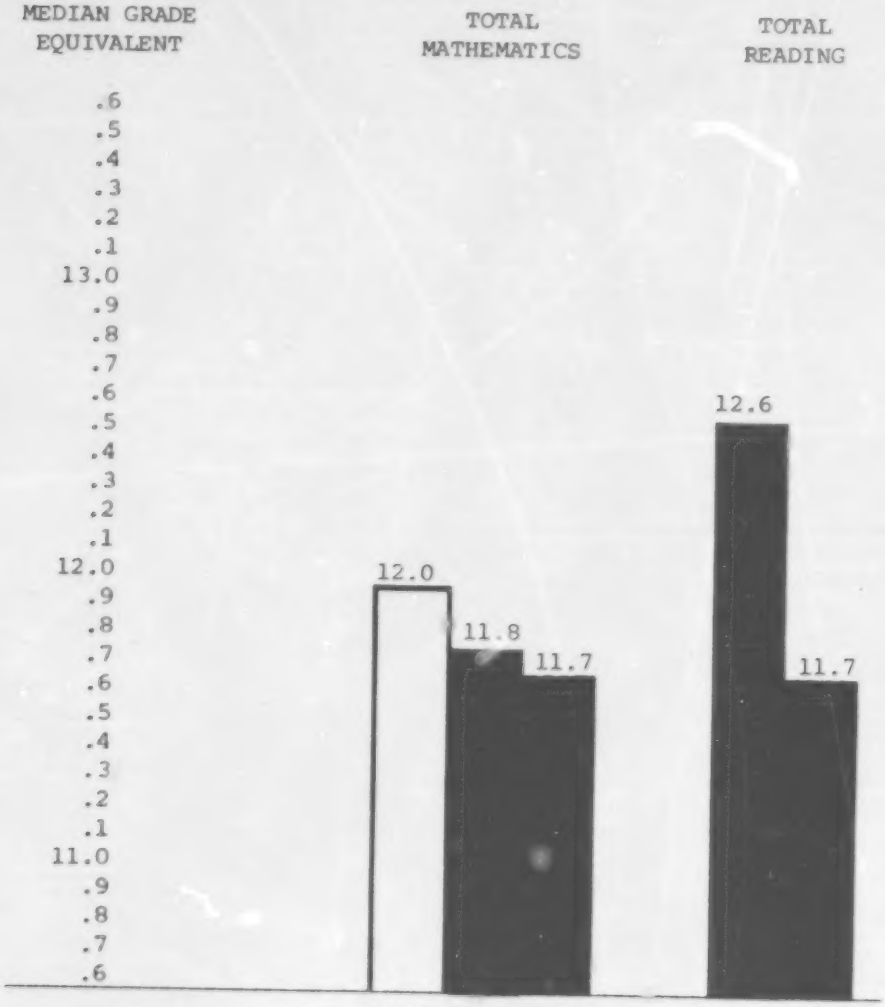
and the national standardization sample on CTBS Mathematics Total are presented in Exhibit 7. Also presented are the results for Reading on the 1978 Utah sample and the national standardization sample.

On the Mathematics Total score there was a slight decline from 1975 to 1978. In grade equivalent terms, the change was from 12.0 to 11.8; in raw scores, approximately three fewer items were answered correctly by the 1978 sample compared to the 1975 sample. The 1978 results closely approximated the achievement of the national standardization sample. Since the decline was not evident at the 5th grade, it may be temporary, reflecting in Utah what has been happening nationally over the past 10 years as reviewed in Chapter II of this report. However, since the reasons for the decline can not be ascertained from the current study, the decline in Mathematics scores should be carefully reviewed by Utah's educators. All of the evidence suggests a real change in Utah students; whether this represents a matter of choice in the selection of classes, other cultural values, or the lack of impact of evolving secondary programs are examples of issues that warrant consideration and discussion.

The total scores shown in Exhibit 7 leave no doubt about the high performance of Utah students in reading. The Utah sample scored almost a full grade equivalent above the national sample. From the raw scores, the Utah sample answered, on the average, approximately four more questions correctly than did the national sample.

Exhibit 7

Utah vs. National Results on Comprehensive Tests of Basic Skills Mathematics and Reading Total Scores, Grade 11



	TOTAL MATHEMATICS			TOTAL READING	
	UTAH 1975	UTAH 1978	NAT'L NORM	UTAH 1978	NAT'L NORM
MEAN RAW SCORE	68.5	65.2	64.5	59.3	55.1
PERCENT OF CORRECT RESPONSES	70%	67%	66%	70%	65%

Subscore Results for Mathematics

Information concerning the grade equivalent standings of the Utah sample compared to the national standardization sample will not be presented due to problems with grade equivalent scaling at the higher grade levels. However, for the three subscore areas, the 1978 Utah results approximated the national standardization sample and were slightly lower than the results obtained in 1975. The raw score means for the 1978 Utah sample and the national sample on the subscores were: 32.9 for the Utah sample versus 32.2 for the national sample on Mathematics Computation; 16.9 for the Utah sample versus 16.7 for the national sample on Mathematics Concepts; and 15.1 for the Utah sample versus 14.9 for the national sample on Mathematics Applications. Thus, on each of the subscores, the 1978 Utah sample answered correctly about the same number of questions as did the national sample.

Results on Specific CTBS Mathematics Content Categories

The 11th grade results obtained for the specific content areas within the CTBS Mathematics test are presented in Exhibit 8. This exhibit shows the average percentage of correct responses for each of the specific content categories for the 1975 and 1978 Utah samples and the national standardization sample. For most categories, the achievement of the Utah sample equaled or exceeded that of the national sample. Across the Mathematics Computation-Operations sets of items, the 1978 Utah sample generally answered the same percentages of items correctly as the national standardization sample. The Utah

Exhibit 8

1978 Utah vs. National Percent of Correct Responses for CTBS Mathematics Test by Content Category, Grade 11

CONTENT AREA	PERCENT OF CORRECT RESPONSES		
	UTAH 1975	UTAH 1978	NAT'L NORM
MATHEMATICS COMPUTATION-OPERATIONS			
Addition (unlike fractions, mixed numbers, algebraic expressions, column, etc.)	77%	72%	72%
Subtraction (products, unlike fractions, mixed numbers, negative integers, etc.)	69%	64%	64%
Multiplication (3 digit, proper fractions, mixed numbers, algebraic expression, etc.)	74%	71%	71%
Division (remainders, fractions, mixed numbers, negative fractions, etc.)	71%	65%	63%
MATHEMATICS CONCEPTS AND APPLICATIONS			
Number Systems/Properties (equivalent forms, factoring, reciprocals, place value, etc.)	71%	71%	61%
Sets (union, intersection, number property, fractional property, separating sets, etc.)	71%	67%	69%
Geometric Relationships (curves, angles, planes, measure given figures, formulas, etc.)	66%	60%	66%
Measurement (convert and compute measures of time, length, money, liquid, weight, etc.)	74%	68%	69%
Mathematical Sentences (solve for an unknown in equations and mathematical sentences)	61%	54%	56%
Problem Solving and Reasoning (missing terms in sequence, needed information, etc.)	70%	65%	64%

sample exceeded the national sample slightly on Division items. On the various Mathematics Concepts and Applications sets, the Utah sample was generally slightly below the standardization sample percentages of correct responses, except on items related to Number Systems/Properties and Problem Solving and Reasoning. The Utah sample exceeded the national sample most on the Number Systems/Properties set; the margin for this set was 71% for the Utah sample versus 61% for the national sample.

The areas where there were marked declines from 1975 and where the 1978 results were below the national average were Sets, Geometric Relationships, and Mathematical Sentences. These are the particular areas that warrant review and discussion by Utah educators. The overall Mathematics results indicated an adequate level of achievement for the 11th grade students in Utah schools in comparison to the national average, but one that could be improved according to past standards.

Subscore Results for Reading

As with the 11th grade subscore results for mathematics, information concerning the grade equivalent standings of the Utah sample compared to the national standardization sample will not be presented. However, for both of the subscore areas of Reading Vocabulary and Reading Comprehension, the results on the Utah students were higher than those obtained on the national sample and reflected the advantage shown by the Utah students on the total score. The raw score means on the subscores were: 28.1 for the

Utah sample versus 26.1 for the national sample on Reading Vocabulary and 31.1 for the Utah sample versus 29.0 for the national sample on Reading Comprehension. Each of these differences represented about five percent additional correct responses on the Utah sample.

Results on Specific CTBS Reading Content Areas

Information concerning 11th grade reading performance in specific content categories is presented in Exhibit 9. This information can help clarify areas of strength and weakness in Utah students compared to the national sample. However, much like those obtained at the 5th grade, the results revealed a general pattern of superior performance for the Utah sample. The areas of greatest strength over the national sample were Rewording and Conclusions. Context Cues and Structure/Style were areas in which the Utah students showed little advantage over the national sample.

Correlates of Mathematics Achievement

Individual Student Level of Analysis

Since the total scores obtained on Mathematics and Reading were highly related, only the relationships of the Mathematics Total score with other variables will be presented. Generally, because of the high relationship between the Mathematics and Reading scores, other measures related to Mathematics would also be related to Reading with few, if any, real differences. This section will present only the results obtained on individual students, and,

Exhibit 9

1978 Utah vs. National Percent of Correct Responses for CTBS Reading Test by Content Category, Grade 11

CONTENT AREA	PERCENT OF CORRECT RESPONSES	
	UTAH 1978	NAT'L NORM
READING VOCABULARY		
Recall of Synonym (synonym of a particular word in a phrase)	70%	65%
READING COMPREHENSION		
Literal Recall (who, what, where, when questions about facts contained in a passage)	52%	45%
Rewording (answer questions by choosing paraphrased or reworded material)	73%	65%
Context Clues (word meaning from context)	72%	71%
Main Idea (identify author's topic or purpose, summarize central thought or moral, select best title)	68%	65%
Descriptive Words (describe physical attributes, emotions, or qualities of things or people presented in a passage)	72%	68%
Conclusions (cause-effect relationships, conclusions based on stated or implied facts)	74%	66%
Structure/Style (punctuation, function words, tense; identify figurative language, interpret symbols, understand method of conveying viewpoint)	66%	64%

because of the similarity of the 5th and 11th grade results, the presentation will apply to both grades, with any differences noted. This information on the correlates of mathematics achievement can help to promote a better understanding of students with various levels of mathematics achievement and to define the relationships among the measures used for each goal area. These results also provide indications of the validity of the various measures considered.

Students with high performance on the total Mathematics score also tended to be above average on the Academic Self-Concept scale from the Emotional Maturity Goal area; however, they were not any more self-accepting or autonomous than the average or low-scoring students on Mathematics. The highest relationship with any of the Emotional Maturity scales was with Academic Self-Concept ($r = .38$ for 5th grade students and .37 for 11th grade students).

Mathematics achievement was relatively independent of the Social Maturity measures of Peer Relations and Extracurricular Activities. The achievement measures for the Aesthetic Maturity (Music Achievement and Art Achievement) and the Productive Maturity (Economic Awareness and Consumer Competence--11th grade) Goal areas were related to the achievement measures for Intellectual Maturity. These relationships among achievement measures reflect intellectual ability and test-taking skills. Students who scored above average on mathematics were also more inclined to enjoy school, to want to continue their education as measured by the Educational Orientation score, and to report that they had superior ability in mathematics.

Relationships with Educational Process Measures--Grade 5

At the 5th grade level, the scores of students within each classroom were averaged to examine the relationships among variables using the classroom as the unit of analysis. The sample was restricted to students indicating that they had only one teacher. Because the 11th grade students rotated extensively across classes, similar processing was not done at that level.

As a result of the averaging process, the wide range of individual differences between students was no longer present. What remained were the underlying differences in characteristics of student groups (such as the effects of socioeconomic status), differences which resulted from classroom teaching techniques, and the cumulative effects of differences between schools. When the classroom means of the achievement measures were correlated with the classroom means on the Educational Process measures, only one of the latter, Expectations, had a statistically significant relationship with mathematics achievement. Expectations was based on student descriptions of classroom procedures, and the relationship ($r = .26$) was low but indicated that teachers who expected students to do their best, who assigned a lot of hard work, etc., had students with higher levels of mathematics performance than teachers whose expectations were not so high. Explaining differences between classrooms in mathematics achievement as a function of an educational process--Expectations--is an example of a research finding that has been difficult to obtain in many studies. This result certainly warrants further

research and consideration by Utah educators.

Demographic Correlates of the Mathematics Total Score

A significant finding, which recurred throughout this study and essentially replicated the findings of the 1975 study, concerned the importance of socioeconomic status (SES). Students from high income families tended to perform more effectively on mathematics achievement at both grade levels (r = .37 at grade 5 and .34 at grade 11). These results confirm previous research findings which have indicated the important influence of the home environment for student learning. The results therefore suggest that assistance by the schools to students from low income homes is an important endeavor to help these students realize their potential.

The mathematics achievement results showed slight differences in the performance of the racial groups studied at both the 5th and 11th grade levels. American Indians, Chicanos, and Blacks all tended to score lower than whites. These findings are as would be expected in view of the results obtained with SES; whites tend to have a comparatively more advantaged background.

The differences in mathematics ability among 5th grade students in small versus large schools, or urban versus rural schools were trivial. However, at the 11th grade, there were some small but distinct differences. Students from large suburban high schools tended to have higher mathematics achievement scores than students from small rural schools. These results, too, could be explained by the effects of SES, but are also compatible with the position

that larger, more well-equipped high schools do have some advantages for the students.

Summary

The Mathematics and Reading sections of the Comprehensive Tests of Basic Skills, Form S, comprised the measurement instruments for the Intellectual Maturity Goal area. The standings of Utah students on these score areas and the relationships of the Mathematics Total score with student outcomes from other goal areas, educational process measures, and demographic characteristics were examined. The results from measures of the Intellectual Maturity Goal area indicated:

1) The Utah 5th grade students in the 1978 sample performed slightly better than their 1975 counterparts and clearly exceeded the performance of the national standardization sample on the Mathematics test. However, the 11th grade students obtained lower scores than the 1975 sample on the Mathematics tests, declining to a level approximating that of the national standardization sample.

2) On the Reading tests, the Utah 5th grade and 11th grade students clearly surpassed the national standardization sample.

3) Attention to specific content categories in Mathematics is warranted for secondary students to develop their skills, particularly in Geometric Relationships, Mathematical Sentences, and Sets, since the Utah students had lower scores on these categories.

4) Students who performed well on mathematics achievement had higher Academic Self-Concept scores, had more positive school experiences, and enjoyed school more.

5) Certain instructional strategies were associated with higher levels of mathematics achievement at the 5th grade. Teachers who expected higher levels of attainment from their students had students with higher levels of mathematics achievement.

6) The relationship of Socioeconomic Status with mathematics achievement was significant and could account for much of the relationship found between mathematics achievement and other demographic variables.

CHAPTER V

RESULTS FROM THE EMOTIONAL MATURITY GOAL AREA

> A person's emotional maturity is exemplified by an increasing constructive management of emotions, of coping with stress and frustration, self-acceptance, and of empathizing with others. (Utah State Board of Education, 1973)

The general objectives listed for achieving this goal included the development of a positive self-image and healthful emotions, obtaining emotional satisfaction, the development of capabilities that bring about personal acceptance in appropriate social groups, understanding the characteristics of mental illness, and other objectives concerned with the general development of high levels of mental health.

Description of Measurement Instruments

In 1975, after a thorough review of available measuring instruments for their compatibility with the Utah Goal of Emotional Maturity, and consideration of their psychometric characteristics, the most effective measurement strategy was to develop a set of new measures which would be appropriate for this goal area at both grades 5 and 11. A thorough pilot study designed to develop these measures was completed by Coray (1975). In that study, many items were analyzed for content and statistical considerations and the final scales were

developed for subsequent use in the Utah Statewide Educational Assessment. The scales for the Emotional Maturity area in the 1978 Assessment consisted of three positive indicators--Academic Self-Concept, Self-Acceptance, and Autonomy. These scales do not provide comprehensive assessments of all the separate components implied in the statement of this goal; however, taken together, these measures do provide good coverage of key aspects of the emotional maturity of Utah students. More specific descriptions of each of the scales within this goal area are provided below.

The Academic Self-Concept scale measured the students' confidence in their academic abilities by asking them to respond to items describing their ability to learn things quickly, to plan, to persevere, to work independently, to remember, and to think clearly. Students with high scores on this scale reported themselves as self-confident about their academic skills and capabilities. High-scoring students more often reported an outstanding or very good ability to stick with schoolwork until it was finished, to plan and carry out schoolwork, and to do what their teachers wanted them to do. They further reported that they were either outstanding or very good at paying attention to school tasks, thinking clearly under academic pressure, learning quickly, and retaining facts about schoolwork. This scale was most closely associated with the Emotional Maturity objectives of enhancing a positive self-image and developing an accurate insight into one's own capabilities and limitations.

The Self-Acceptance scale measured student self-perception in relation to the school and to the student's peers. High scores on this scale indicated that the students felt good about themselves, were proud of themselves, and were happy about the way they did things. Further, high-scoring students reported that they were well-liked by their friends and probably would not change to be like someone else. This scale was most closely associated with the Emotional Maturity objectives of developing insights into life's realities, personal acceptance, and understanding the social variations in individuals.

The Autonomy scale measured the amount of independence and self-sufficiency exhibited by the student. High-scoring students indicated their inclination for doing things their own way, working alone, and making independent decisions. Further, they reported that they managed their own lives, were independent workers, were self-directed, and preferred to take care of their own problems. The Autonomy scale was most closely associated with the Emotional Maturity objectives of developing insights into one's own capabilities and limitations, and accepting the consequences of both correct and incorrect decisions.

Results for Emotional Maturity Scales

Results for the Emotional Maturity scales are presented in Exhibit 10 for the 5th grade students and in Exhibit 11 for the 11th grade students. In these exhibits, the percentage of students

Exhibit 10

1975 and 1978 Emotional Maturity Results, Grade 5

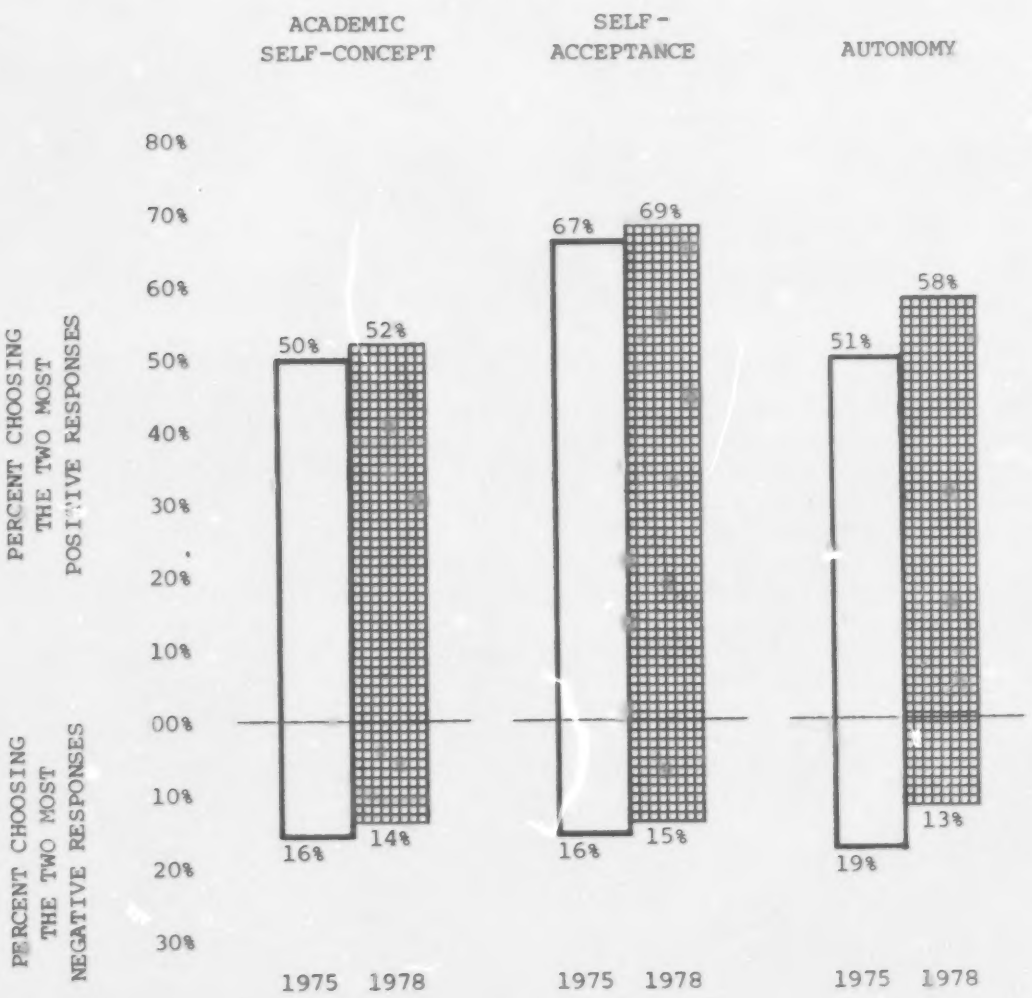
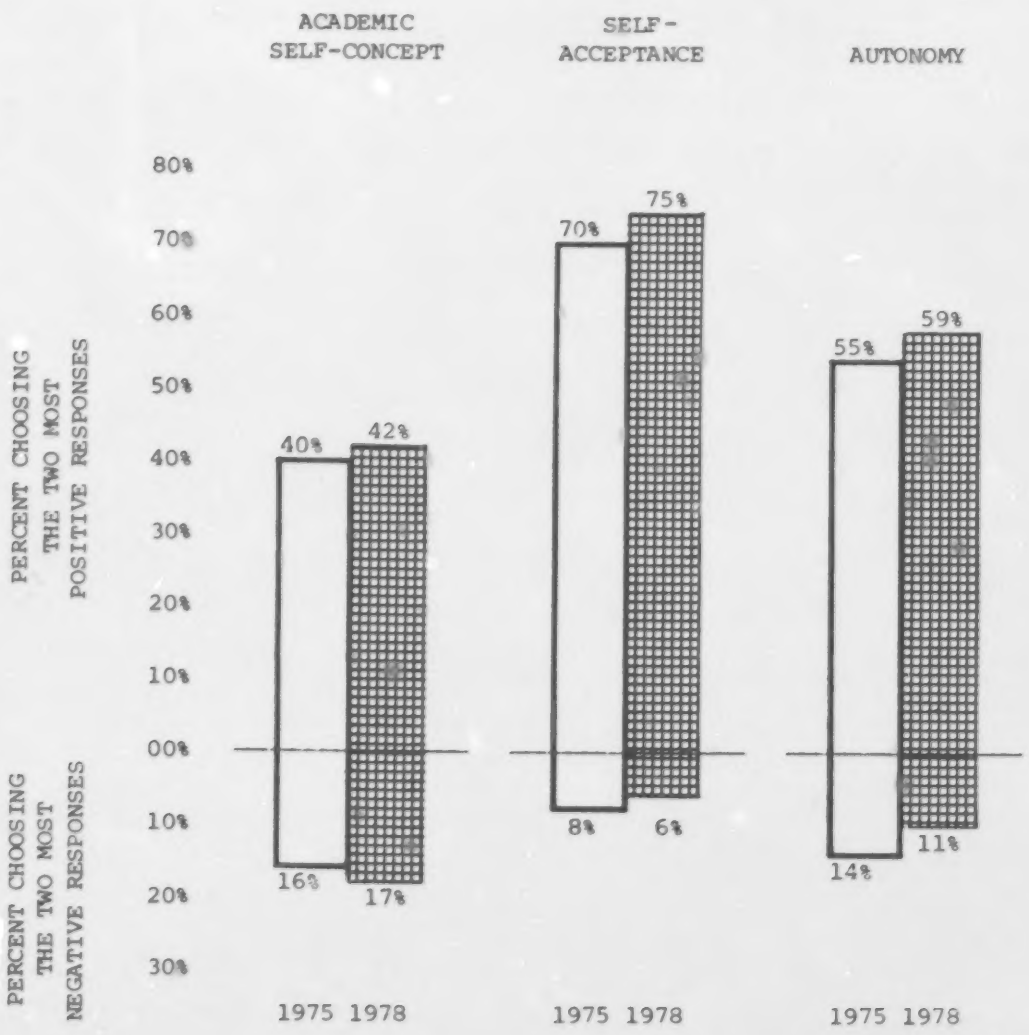


Exhibit 11

1975 and 1978 Emotional Maturity Results, Grade 11



choosing the two most positive and the two most negative alternatives for the items on each scale are given for 1975 and 1978. The percentage of students choosing the middle response alternative has been eliminated to simplify the presentation.

At the 5th grade, the scores were generally consistent from 1975 to 1978, with a slight increase toward higher levels of Emotional Maturity. The score area with the most marked increase was Autonomy, where the percent of positive responses increased from 51 to 58.

At the 11th grade, the performances of the students participating in the Statewide Assessment studies in 1975 and 1978 were also similar, with slightly higher scores obtained by the students in 1978 on the Self-Acceptance and Autonomy scales.

As stated earlier, the research procedures do not permit causal interpretations. The fact that Autonomy scores increased on both the 5th and 11th grade students studied suggested a real phenomenon and not an artifact of the samples studied. Perhaps either a cultural movement toward higher levels of self-sufficiency, of "doing one's own thing," or some other factors have been operating to increase the autonomy of Utah's students. Since there was no consistent change in Academic Self-Concept, a score area that is more directly under the schools' control, there appeared to be no reason to suspect that the schools were responsible for such a movement in the Autonomy score area.

The generally high endorsement of positive alternatives indicated a positive level of adjustment of the Utah students on the

Emotional Maturity scales. On the Academic Self-Concept scale, the 11th grade students were at a slightly lower level than the 5th grade students. These results emphasize the importance of school policies, procedures, and educational goals which are concerned with the promotion of success and with the reduction of failure in the educational system. Apparently, there is no automatic tendency for students, as they grow older, to feel more positive about themselves as learners.

The general level of student endorsement of positive responses should be viewed as encouraging for the Emotional Maturity Goal area and the mental health of Utah students. However, at both grades, there were a fairly large number of students who endorsed negative alternatives. These results, too, emphasize the importance of teachers and the educational system working with such students, trying to prevent the further development of maladaptive tendencies and to promote higher levels of emotional maturity.

Exhibit 12 presents the 1978 results for sample items from the Academic Self-Concept scale. This scale was selected for more detailed discussion, since Academic Self-Concept was most directly concerned with the educational system. This exhibit provides additional evidence of the general emotional maturity of Utah students, as demonstrated by their selection of positive alternatives to the items presented. Items 2 and 4 on this exhibit have a larger percentage of students selecting negative alternatives, suggesting that student planning and perseverance are areas which offer opportunities for improvement at both the 5th and 11th grade levels.

Exhibit 12

1978 Results for Selected Items from the Academic Self-Concept Scale, Grades 5 and 11

ITEM	PERCENT OF STUDENTS CHOOSING EACH ALTERNATIVE GRADE 5	GRADE 11
1. My ability to learn things quickly is:		
A. Outstanding	9%	8%
B. Very good	35%	41%
C. Good	45%	43%
D. A little weak	10%	8%
E. Rather poor	1%	0%
2. My ability to stick with schoolwork until it is finished is:		
A. Outstanding	18%	7%
B. Very good	26%	26%
C. Good	31%	39%
D. A little weak	21%	25%
E. Rather poor	4%	3%
3. My ability to do schoolwork is:		
A. Outstanding	18%	8%
B. Very good	38%	37%
C. Good	34%	43%
D. A little weak	9%	10%
E. Rather poor	2%	1%
4. My ability to plan and carry out my schoolwork is:		
A. Outstanding	14%	4%
B. Very good	31%	28%
C. Good	39%	44%
D. A little weak	14%	22%
E. Rather poor	2%	2%
5. My ability to do what my teachers want me to do is:		
A. Outstanding	26%	12%
B. Very good	36%	40%
C. Good	27%	40%
D. A little weak	9%	6%
E. Rather poor	2%	2%

Correlates of Academic Self-Concept--
Individual Student Level of Analysis

The Academic Self-Concept scale was selected as the key measure for the Emotional Maturity Goal and its relationships with other measures included in the study will be examined. This selection was made since the Academic Self-Concept scale was most directly concerned with the impact of the student's educational experience.

Since the pattern of relationships for the Academic Self-Concept scale with other measures was essentially the same at both the 5th and 11th grade levels, these results will not be discussed separately by grade. As already mentioned, a person with a high score on this scale had relatively good mental health and confidence in his/her ability to do well in an academic setting. The Academic Self-Concept score had a meaningful pattern of relationships with the two other scores in the Emotional Maturity area, as it correlated moderately with tonomy ($r = .49$ at the 5th grade and .52 at the 11th grade) and somewhat less so with Self-Acceptance. These results supported the validity of the measures developed for this goal area. Stated alternately, different measures were necessary to provide adequate coverage of Emotional Maturity; yet, as would be expected, these measures had meaningful interrelationships.

Students with high scores on Academic Self-Concept tended to be relatively well-rounded individuals since there were positive relationships between the Academic Self-Concept score and key scales from other goal areas. Students who were above average on

the Academic Self-Concept score also tended to be above average on the CTBS Mathematics Total score from the Intellectual Maturity area (r = .38 at grade 5 and .37 at grade 11), and the Peer Relations scale from the Social Maturity area (r = .52 at grade 5 and .50 at grade 11). The relationships were somewhat lower with Independent Development from the Productive Maturity Goal area (r = .38 at grade 5 and .45 at grade 11) and Enjoyment of School (r = .37 at grade 5 and .47 at grade 11). There were also moderate positive relationships with student's Educational Orientation, Creativity, and the self-reported academic achievement measures. This pattern of relationships of Academic Self-Concept with other measures provides additional evidence concerning the importance of a positive self-image in learning skills and competence.

Correlates of Academic Self-Concept--
Grade 5--Classroom Level of Analysis

At the 5th grade level, the data were analyzed by correlating the average classroom scores across all measures. The interrelationships of these mean scores generally parallel those obtained with individuals, with some slightly higher relationships as error was averaged out and the individual differences were removed. Analysis at this level permitted examination of the relationships of the process measures with Academic Self-Concept. Of the educational process measures, only Reinforcement of Self-Concept had a statistically significant relationship (r = .24) with this key performance measure. That is, classes which were described by

students as being high on Reinforcement of Self-Concept also tended to have students with above average levels of Academic Self-Concept.

Academic Self-Concept--Demographic Correlates

Students who were above average on Academic Self-Concept also tended to come from above average income homes as indicated by the positive relationship ($r = .32$ at grade 5 and .30 at grade 11) with the Socioeconomic Status measure. This suggests that the schools have real opportunities to help low income students reach their potential. As might be expected on the basis of these results, whites tended to be slightly higher on Academic Self-Concept, as did the 11th grade students from larger urban and suburban high schools.

Summary

Measures used for the Emotional Maturity Goal area in 1978 included three scales--Academic Self-Concept, Self-Acceptance, and Autonomy. The results from the Emotional Maturity Goal area included the following:

1) The Utah students showed generally positive adjustment across the scales used for measurement of this goal area.

2) There was a generally consistent pattern of results obtained from 1975 to 1978 for the Emotional Maturity scales; slight increases were most apparent for the Autonomy score on 5th grade students.

3) The 11th grade students reported a slightly lower level of

adjustment than the 5th grade students on the Academic Self-Concept scale.

4) Students who were above average on the Academic Self-Concept scale were above average on academic achievement, on being socially capable, and on being self-starting learners. They also enjoyed school more. These are very positive traits, and further evidence that Emotional Maturity should be developed in the school system.

5) Higher mean scores on the Emotional Maturity measures tended to be obtained in classrooms where instructional strategies and teaching processes evidenced by higher Reinforcement of Self-Concept mean scores were used by teachers.

6) Students from low socioeconomic status homes tended to have somewhat lower Emotional Maturity scores, suggesting that the schools, where possible, should try to provide an environment where positive growth can occur for these students and for any others having difficulties in the Emotional Maturity area.

CHAPTER VI

RESULTS FROM THE SOCIAL MATURITY GOAL AREA

> A person's social maturity is exemplified by increasingly exercising freedom with its accruing responsibilities; demonstrating functional leadership and appropriate followership; interacting in the social environment for self-realization and/or an awareness of the needs and values of others; acting within the basic values, institutions, and processes of American democracy; understanding world interdependence and how diverse cultures function. (Utah State Board of Education, 1973)

The general objectives for attaining the Social Maturity Goal were concerned with the individual's feelings of personal worth, recognition of the worth of others, commitment to group ideals, assumption of functional leadership roles when needed, acceptance of social responsibility, cooperation in the interest of peace and welfare, and other issues concerned with social behavior and life enrichment.

Description of the Measurement Instruments

Whereas achievement of these general objectives is important for the maintenance of an effective and humane society, assessing the degree to which the objectives have been met with short measuring instruments is quite difficult. Rather than attempt to measure each of the Social Maturity objectives, the 1978 Utah Statewide Educational Assessment effort in this area was directed at the

measurement of Peer Relations and Extra-Curricular Activities. These measures were also used in the 1975 study. Given the time constraints and the appropriateness of available measures, the Peer Relations scale was used at both the 5th and 11th grade levels. Extra-Curricular Activities were measured at the 11th grade only. In the construction of these scales in 1975, most of the items were selected from previously constructed measures which had demonstrated stable and meaningful results in past IBRIC studies. The items were adapted and rewritten to fit the needs of Statewide Assessment. While these measures were not intended to be comprehensive, they adequately indicated an individual's level of Social Maturity.

The Peer Relations scale measured the student's level of interpersonal skills, including cooperative skills, ability to help others solve problems and accomplish tasks, and ability to take responsibility. High-scoring students on this scale were more likely to report that they were outstanding or very good at getting others to understand their feelings, working with other students to complete a task, making friends with new students, sharing ideas and feelings with close friends, talking with persons of the opposite sex, and helping someone who is angry or upset to calm down and relax. Further, they were more likely to report that they were outstanding or very good at working with other students as part of a team effort, understanding how other students feel about things, asking problem-solving questions, helping others, getting others to see the humor in things, aiding students who have been absent to catch up, helping their friends to

get along with each other, making introductions, and making their friends enjoy visits to their homes.

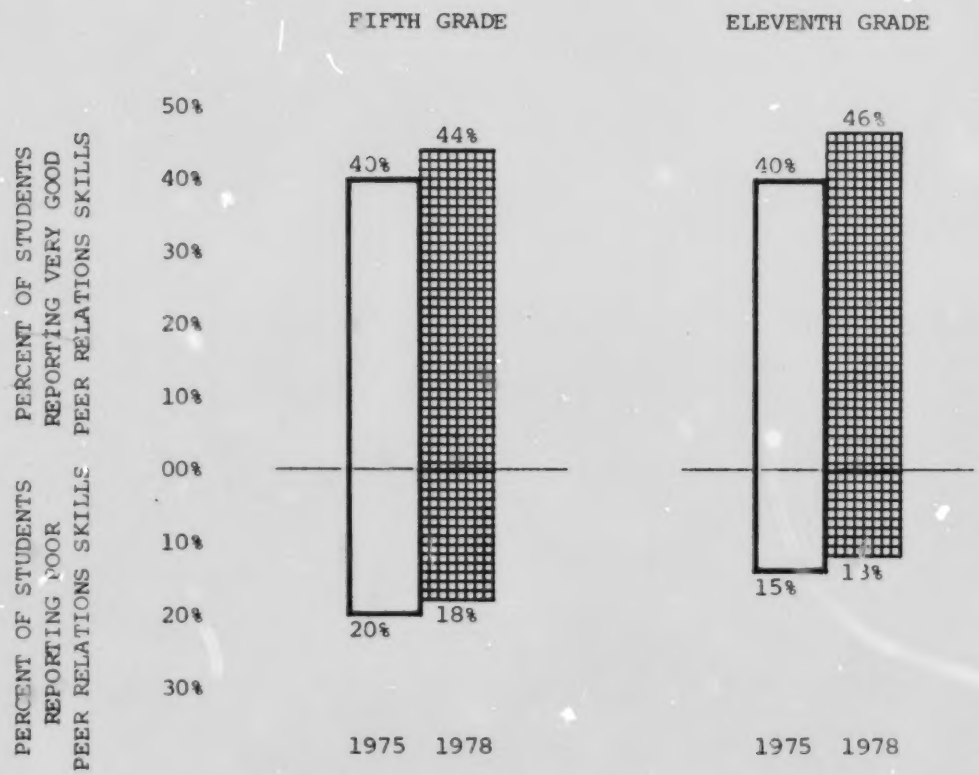
The second measure for the Social Maturity Goal area was the Extra-Curricular Activities scale which measured the student's level of involvement in school-related activities outside of classwork. Students who scored high on this scale responded that they frequently participated in activities such as journalism, music, art, drama or dance, and were involved in organizations related to business, politics, school, and sport support.

Results for the Peer Relations Scale

Since the Peer Relations scale was prepared specifically for the 1975 Statewide Assessment, no national norms were available; however, 1978 results can be compared to the results obtained previously. The results for the 1975-1978 comparison on the Peer Relations scale for 5th and 11th grade students are presented in Exhibit 13. This exhibit shows the percentage of students choosing the two most positive and the two most negative responses for the items in the scale. From 1975 to 1978, there was a moderate improvement on both 5th and 11th grade students in self-reported Peer Relations skills. In 1978, an average of 44% of the 5th grade students and 46% of the 11th grade students chose "very good" or "outstanding" in responding to the questions in this score area. Only 18% and 13% of the 5th and 11th grade students respectively chose "a little weak" or "poor" in responding to these questions.

Exhibit 13

1975 and 1978 Results for the Peer Relations Scale, Grades 5 and 11



Considering the pattern of growth from 1975 to 1978 and the generally positive results in how students describe their social skills, these findings indicate an effective level of development for Utah's students in this goal area. Since the 11th grade students tended to score slightly higher than 5th grade students, the results suggest that maturation and education over the years have resulted in higher levels of performance in the Peer Relations area.

A sample of items from the Peer Relations scale and the percentage choosing each alternative are presented in Exhibit 14. Examination of these results and those shown previously indicates that the 5th and 11th grade students did not show great differences in responding to Peer Relations items. The students' responses to these items indicated a generally adequate or effective level of functioning with about 18% of the 5th grade students and slightly fewer of the 11th grade students reporting that their relationships with others were weak. While these overall results are encouraging, about one in six of the students studied endorsed alternatives on Peer Relations which indicated that they were either a little weak or rather poor in the Peer Relations skills. Thus, there are still real opportunities for improvement of these skills for some Utah students.

Results for the Extra-Curricular Activities Scale--Grade 11

The Extra-Curricular Activities scale was administered at only the 11th grade level, and comparisons of results for 1975 and 1978 are presented in Exhibit 15. In this exhibit, at least some

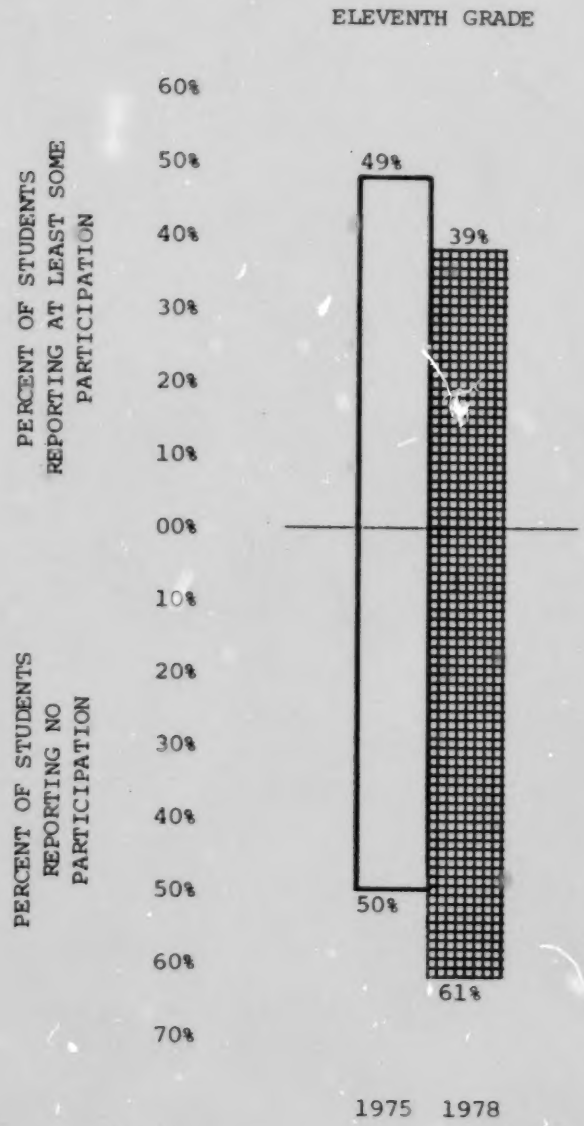
Exhibit 14

1978 Results for Selected Items from the Peer Relations Scale, Grades 5 and 11

ITEM	PERCENT OF STUDENTS CHOOSING EACH ALTERNATIVE GRADE 5	GRADE 11
HOW GOOD ARE YOU AT:		
1. Sharing your ideas or feelings with close friends?		
A. Outstanding	28%	28%
B. Very good	35%	40%
C. Good	27%	23%
D. A little weak	7%	8%
E. Rather poor	3%	1%
2. Working with other students as part of a team effort?		
A. Outstanding	23%	11%
B. Very good	34%	41%
C. Good	34%	38%
D. A little weak	6%	9%
E. Rather poor	2%	1%
3. Helping your friends to get along with each other?		
A. Outstanding	11%	7%
B. Very good	26%	33%
C. Good	42%	47%
D. A little weak	16%	12%
E. Rather poor	5%	1%
4. Helping someone who is angry and upset calm down and relax?		
A. Outstanding	13%	9%
B. Very good	24%	33%
C. Good	41%	45%
D. A little weak	16%	12%
E. Rather poor	6%	1%

Exhibit 15

1975 and 1978 Results for the Extra-Curricular Activities Scale, Grade 11



participation is contrasted with no participation in a variety of school activities. There was a rather dramatic increase in 1978 in the average percentage of students who did not participate in the extra-curricular activities surveyed; the percentage in 1975 was 50 while in 1978 the percentage who did not participate was 61. While these results are generally compatible with the previously discussed shift toward greater Autonomy, there was no other apparent explanation in the assessment data for this lower level of participation. Since the data revealed no apparent negative consequences of the general shift toward lower levels of extra-curricular participation, the results do not necessarily portend future or current problems; however, the topic should be carefully reviewed by administrators, teachers, and students. The key question is whether the lower level of participation in extra-curricular activities represent a matter of choice, or whether the changed participation resulted from lack of opportunities.

Results for 11th grade students on sample items of the Extra-Curricular Activities scale are presented in Exhibit 16. The item results indicated relatively low levels of involvement by most students in the school-associated, extra-curricular activities sampled in the questionnaire. In some cases, the shifts in participation from 1975 to 1978 were rather dramatic (e.g., in 1975, 57% of the sample did not participate in some form of journalistic activities; in 1978, 71% did not participate).

As in 1975, the relationship between Extra-Curricular Activities and school size was relevant; average Extra-Curricular

Exhibit 16

1975 and 1978 Results for Selected Items from the Extra-Curricular Activities Scale, Grade 11

ITEM	PERCENT CHOOSING ALTERNATIVE 1975	1978
HOW OFTEN DO YOU PARTICIPATE IN:		
1. Journalism (newspaper, yearbook, literary publications)?		
A. Very often (almost every day)	6%	6%
B. Quite often (about once a week)	4%	2%
C. Somewhat often (about once a month)	8%	6%
D. Not very often (once a term or less)	23%	15%
E. Do not participate	57%	71%
2. Music (band, choir, orchestra)?		
A. Very often (almost every day)	24%	18%
B. Quite often (about once a week)	6%	3%
C. Somewhat often (about once a month)	7%	5%
D. Not very often (once a term or less)	12%	8%
E. Do not participate	49%	66%
3. Drama or dance?		
A. Very often (almost every day)	14%	16%
B. Quite often (about once a week)	8%	6%
C. Somewhat often (about once a month)	13%	9%
D. Not very often (once a term or less)	18%	12%
E. Do not participate	47%	57%
4. Business activities (DECA, Marketing Club)?		
A. Very often (almost every day)	7%	11%
B. Quite often (about once a week)	5%	5%
C. Somewhat often (about once a month)	9%	7%
D. Not very often (once a term or less)	17%	10%
E. Do not participate	62%	67%
5. Political activities (student government)?		
A. Very often (almost every day)	3%	5%
B. Quite often (about once a week)	5%	4%
C. Somewhat often (about once a month)	11%	8%
D. Not very often (once a term or less)	23%	12%
E. Do not participate	56%	72%

Activities scores tended to be somewhat lower in larger schools than in smaller schools. Several plausible explanations for the phenomenon could be proposed. One is that small schools are more typically located in rural areas where extra-curricular activities tend to center around the school; whereas, large schools are usually located in cities where a greater number of activities--not necessarily centered around the school--are available for student participation. Thus, since the Extra-Curricular Activities scale is focused toward school-directed activities, the results obtained could be expected. Another factor could be that smaller schools tend to have many of the same functions and organizations as do large schools, with less competition for these activities and, thus, a higher percentage of students involved. None of this discussion is a sufficient explanation for the shift in Extra-Curricular Activities scores from 1975 to 1978. However, school populations in Utah have been growing since 1975, and this could have contributed to the results obtained.

Correlates of Peer Relations--Individual Student Level of Analysis

The pattern of relationships between Peer Relations and the other measures studied was quite similar for the 5th and 11th grade students. The relationships of CTBS scores with Peer Relations were relatively low, indicating that student performance in reading and mathematics has little or nothing to do with Peer Relations. However, the relationships between Peer Relations and the

various Emotional Maturity scales were moderate to high (r's about .50 with Academic Self-Concept), indicating that the students who scored high in Peer Relations were likely to score high on the Emotional Maturity measures of Academic Self-Concept, Self-Acceptance, and Autonomy. Peer Relations had low positive relationships (r's in the .20s and .30s) with the Aesthetic Maturity measures, indicating that a student who was high on Peer Relations was apt to be more aesthetically mature.

The Independent Development scale for the Productive Maturity Goal was related to Peer Relations at a moderate level (r = .48 at grade 5 and .39 at grade 11), indicating that the student who scored high in Peer Relations was more inclined to participate in self-initiated learning activities than those who scored low.

Peer Relations had generally mixed relationships with several other key measures, e.g., students who were below average in Peer Relations were less inclined to enjoy school, and they reported that they were less likely to continue their education. They also viewed themselves as less capable in reading and mathematics, although, as stated previously, they were approximately average in these skills as measured by the achievement measures.

Relationships with Educational Process Measures

High classroom average scores on Peer Relations were associated with higher scores on the educational process measures of Reinforcement of Self-Concept (r = .37), Classroom Participation (r = .36), and

Development of Career Talents (r = .33). Somewhat less related to Peer Relations was the process measure of Individualization of Instruction (r = .26). These relationships indicated that classrooms with extensive student involvement and participation, positive feedback, and talent activities were more likely to have high mean scores on Peer Relations, suggesting that wider use of these teaching strategies should be considered by Utah educators.

Demographic Correlates of Peer Relations

The Peer Relations scale generally had limited relationships with the demographic measures. It had low positive relationships (r = .23 at each grade level) with the SES measures, i.e., 5th and 11th grade students from homes with below average incomes tended to have lower social skills, as did students from rural or small high schools. At the 11th grade, there was also a greater tendency for American Indian and Chicano students rather than for Black or white students to report that their social skills could be improved.

Summary

Two scales measured aspects of the Social Maturity Goal. One of these, Peer Relations, was administered to both 5th and 11th grade students. This scale measured the individual's self-reported ability to interact effectively with other students. An Extra-Curricular Activities scale was administered only to the 11th grade students.

The following summarizes the results from the measures of this goal area.

1) Utah students in the sample generally had high levels of self-reported Peer Relations skills, and there was a moderate improvement from 1975 to 1978 for both 5th and 11th grade students. Overall, these results indicated an effective level of development in social skills for most Utah students.

2) Limited involvement in school-associated, extra-curricular activities was reported by the 11th grade students. Over 60% of the students reported no involvement in the activities sampled. Small rural schools had higher levels of student participation in school-based, extra-curricular activities.

3) Students who scored high on Peer Relations also scored high on measures of Emotional Maturity, Productive Maturity, and Enjoyment of School.

4) Instructional strategies most associated with high Peer Relations skills were Reinforcement of Self-Concept, Classroom Participation, and Development of Career Talents.

5) The relationships of the demographic measures with the Peer Relations scale were limited. However, a small percentage of Utah students, including some minority group members and some students from small rural high schools could benefit from greater opportunies for development in Peer Relations skills.

CHAPTER VII

RESULTS FROM THE AESTHETIC MATURITY GOAL AREA

> An individual's aesthetic maturity is exemplified by an increasing sensitivity in perceiving the environment and acknowledging the human qualities of each individual; by a more satisfying use of one's senses in making aesthetic judgment; by more capably communicating aesthetic insights through the cultural arts and through a greater harmony with oneself. (Utah State Board of Education, 1973)

An assumption which underlies this goal area is that knowledge and appreciation for aesthetics permeate all other facets of an individual's life and allow that person to become more complete, to reach more closely one's true potential. The measurement of student characteristics in this goal area represented a difficult challenge for the assessment staff, as is described in this section.

Description of Measurement Instruments

After an extensive review of available instruments and discussions with subject matter specialists, three specially developed scales were constructed in 1975 to measure different aspects of the Aesthetic Maturity Goal area. A key measure of this goal area which was retained for the 1978 Assessment was the Music Achievement scale, which was based on 21 items. Nine of the items were concerned with a general knowledge of music appreciation, such as whether a bass, baritone, tenor, or soprano voice would be used to suggest the idea

of thunder. The remaining 12 items in the Music Achievement scale asked for more specific knowledge involving the reading of sheet music. In each test booklet, a page of sheet music for the song "Soldier, Soldier" was reproduced. Examples of the questions asked about the sheet music were: 1) whether the first note was an eighth, quarter, half, or whole note; 2) in which key was the song written; and 3) to choose the list which correctly named the notes in a given portion of the song.

The second measure in the 1978 Aesthetic Maturity Goal area was a completely revised version of the 1975 Art Achievement scale. The 1975 results indicated a number of revisions were warranted, and the 1978 Art Achievement measure was built on the basis of this earlier experience. As with Music Achievement, two types of questions were asked on the Art Achievement scale. The first type of question pertained to knowledge of basic and advanced art concepts. Questions were asked, such as what type of colors make a shape stand out from its background, or what happens to an object as it gets farther and farther away. The second type of question asked the student to evaluate certain aspects of simple drawings which were reproduced in the test booklet to illustrate basic art concepts, such as horizon line, shadow position, highlighting, etc.

The third measure of the Aesthetic Maturity Goal area in 1975 and 1978 was made up of 17 items concerned with Art and Music Activities. This scale dealt with participation in artistic endeavors and the attitudes of the student toward art and music. Questions were asked about how much of the student's free time is spent

enjoying some kind of artistic activity (making pictures, studying music, ceramics, etc.) and the extent of the student's participation in private art lessons (drawing, painting, sculpture, ceramics, architecture, photography, etc.). Also tapped were the student's judgments of how important it is to be creative and imaginative. Questions in this section also dealt with participation in, and being a patron at, various kinds of artistic events.

Results for the Music and Art Achievement Scales

Exhibit 17 presents the 1975-1978 comparisons for the Music Achievement scale on 5th and 11th grade students. The exhibit shows a marked increase in correct responding for 5th grade students in 1978 over those tested in 1975. These results are compatible with the introduction and dissemination of a statewide music program, and indicate that the program has been effective, as the percent of correct responses moved up from 31 to 40. In contrast, at the 11th grade, where the program has not been in effect, there was no real change from 1975 to 1978. As expected, the 11th grade students scored at a higher level than did the 5th grade students, reflecting their greater intellectual development. As the 5th grade students mature and as younger students benefit from a longer and more thorough exposure to the program, additional gains can be expected in the future.

Exhibit 18 presents five example items from the Music Achievement scale and shows the percentage answering correctly for 1978 on 5th and 11th grade students. Items 1 and 3, dealing with music

Exhibit 17

1975 and 1978 Results for the Music Achievement Scale, Grades 5 and 11

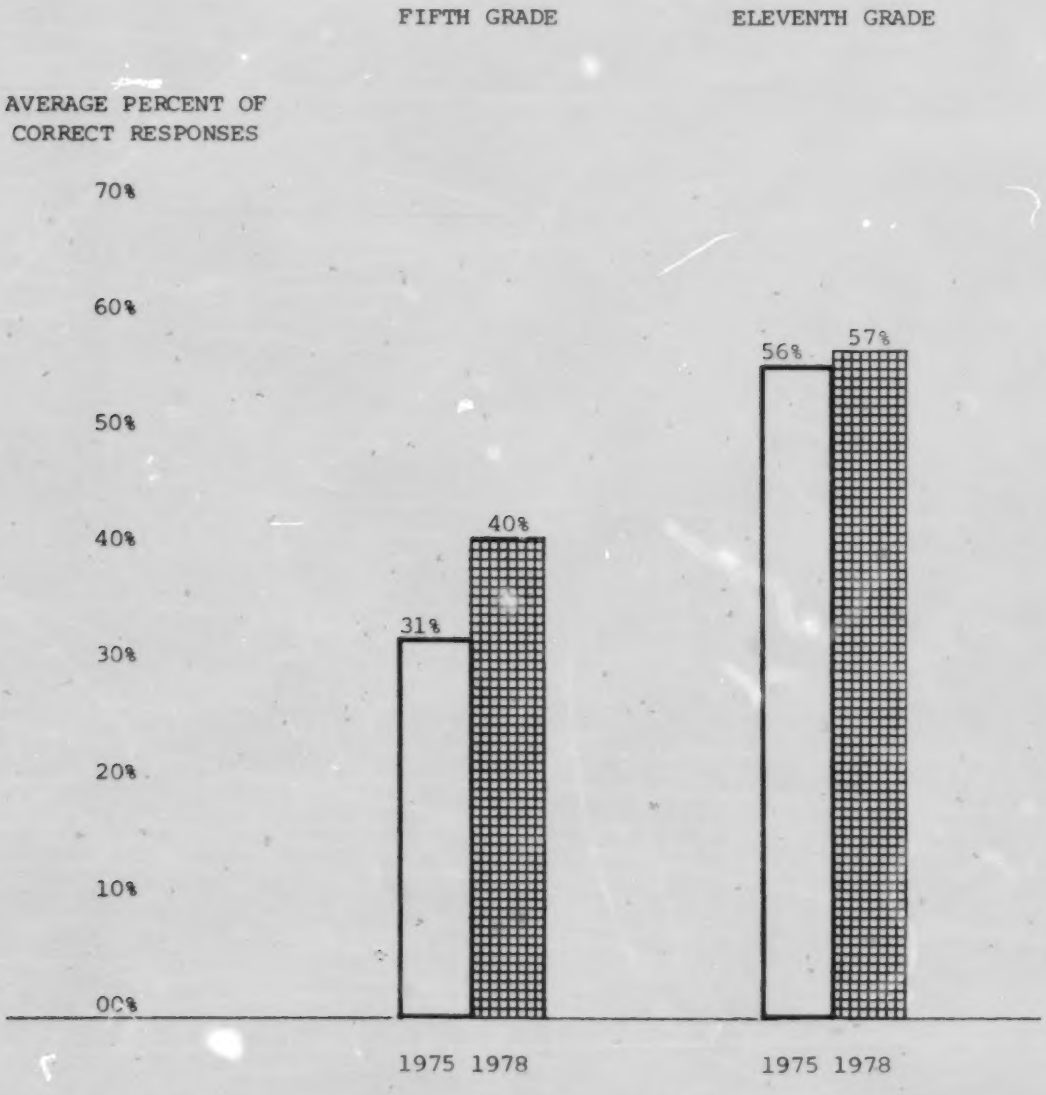


Exhibit 18

1978 Results for Selected Items from the Music Achievement Scale, Grades 5 and 11

ITEM	PERCENT OF SAMPLE RESPONDING CORRECTLY GRADE 5	GRADE 11
1. If you were listening to loud, fast music with drums and cymbals being played, what would you probably feel like doing?		
A. Sitting quietly to listen		
B. Marching or moving with the music	69%	83%
C. Swaying gently		
D. Dancing slowly		
E. Don't know		
2. Who composed the Nutcracker Suite (Waltz of the Flowers)?		
A. George Frederick Handel		
B. Peter Ilyich Tchaikovsky	25%	43%
C. John Philip Sousa		
D. Sergei Prokofiev		
E. Don't know		
3. Which of the following would you use to suggest the idea of thunder?		
A. Bass	50%	71%
B. Baritone		
C. Tenor		
D. Soprano		
E. Don't know		
4. The musical term rit. (or Ritardando) above measure 17* means:		
A. gradually slower.	30%	47%
B. gradually faster.		
C. louder.		
D. softer.		
E. Don't know.		
5. The musical term mf (Mezzo forte) written above measure 1* means:		
A. medium soft.		
B. medium loud.	25%	40%
C. medium slow.		
D. medium fast.		
E. Don't know.		

*The sheet music for the song "Soldier, Soldier" was reproduced in the booklets.

interpretation, generally had a considerably higher percentage of correct responses than did the more difficult music knowledge questions.

Exhibit 19 presents the percentage of correct responses for both 5th and 11th grade students to the newly developed Art Achievement scale. No 1975 comparison is available. The results reviewed indicate that the test is generally applicable at both grade levels, as the 5th grade students answered 43% of the questions correctly compared to 58% of the 11th grade students. These results indicate there is considerable room for improvement at both grades.

Examples of some of the results for specific items of the Art Achievement scale are presented in Exhibit 20. Item 3, dealing with characteristics of distant objects, was considerably more difficult than the other questions which were of somewhat uniform difficulty. Since a new art curriculum has recently been developed and is currently being disseminated, significant increases could occur in the Art Achievement scale in the next Utah Statewide Assessment. This, of course, is one of the purposes of Utah's Assessment project--to monitor the general strengths and weaknesses of current and new educational programs.

Results for the Art and Music Activities Scale

Exhibit 21 gives the results for the Art and Music Activities scale and shows that: 1) 5th grade students reported higher levels of Art and Music Activities than did 11th grade students; and 2) the

Exhibit 19

1978 Results for the Art Achievement Scale, Grades 5 and 11

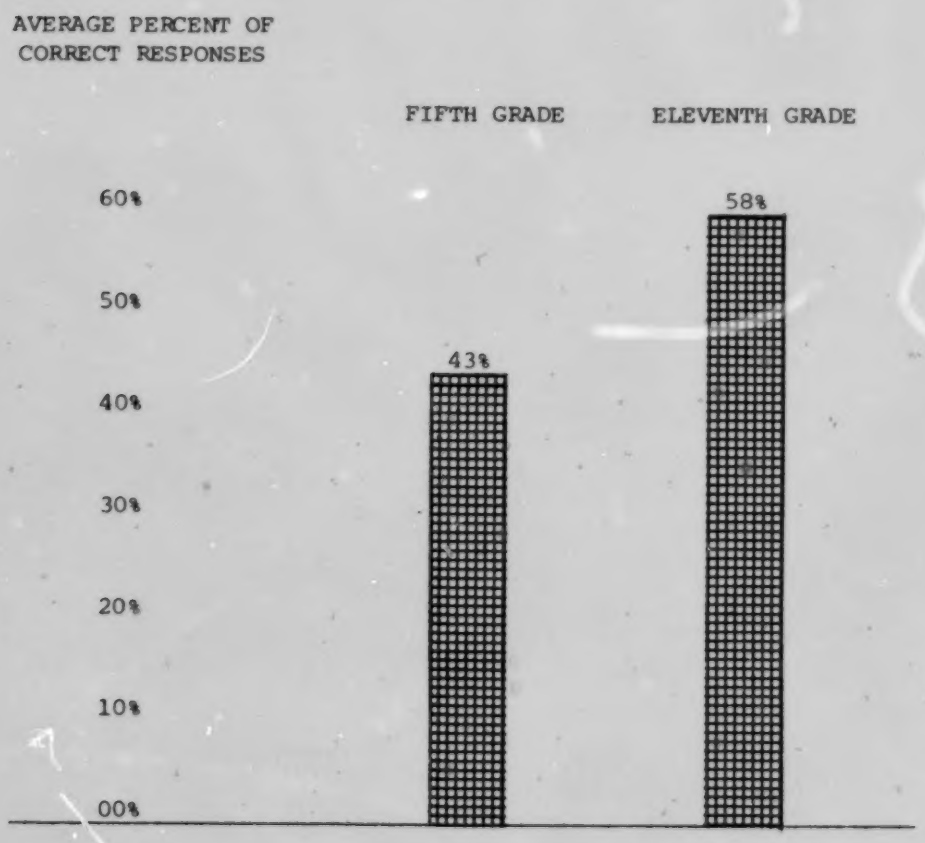


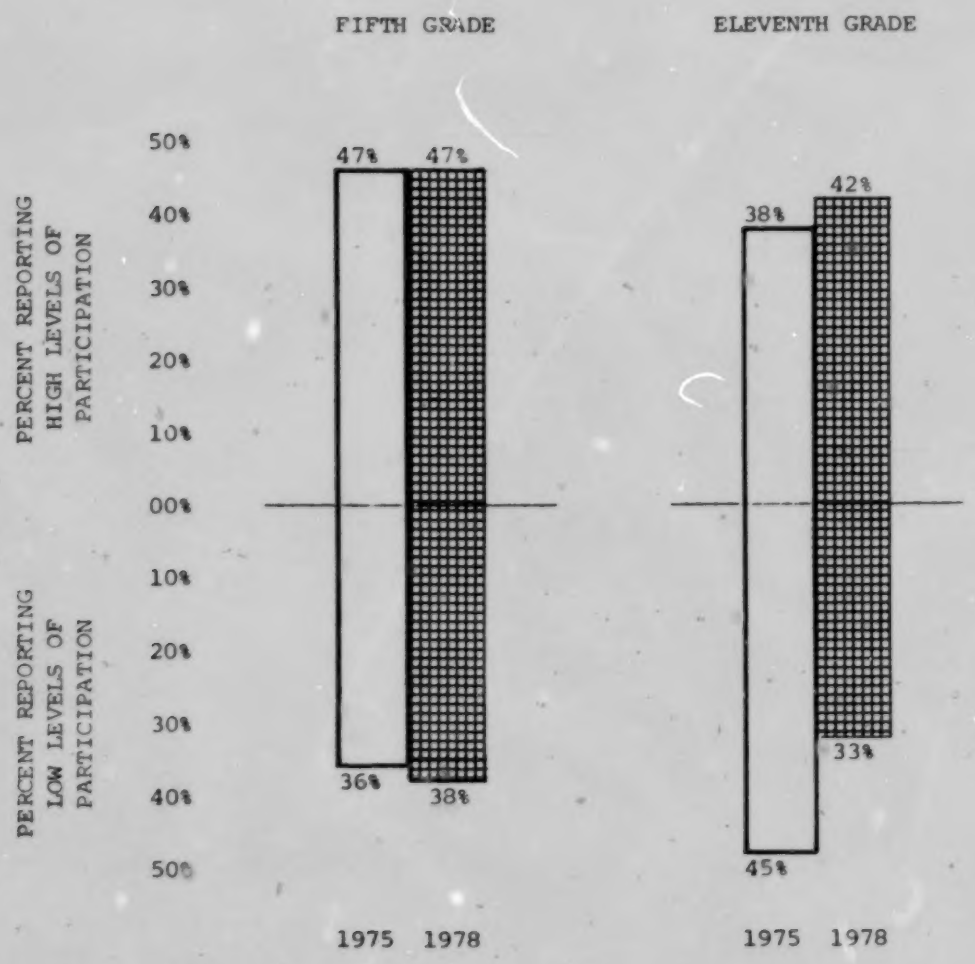
Exhibit 20

1978 Results for Selected Items from the Art Achievement Scale, Grades 5 and 11

ITEM	PERCENT OF SAMPLE RESPONDING CORRECTLY GRADE 5	GRADE 11
1. In drawing or painting a picture, the look of depth is created when people or objects are: A. side by side. B. on a base line. C. in front of one another.	40%	66%
2. Most colors you can imagine come from mixing which of the following colors? A. Black, white and gray B. Red, green and white C. Red, yellow and blue D. Yellow, blue and green E. Don't know	50%	70%
3. Which of the following describes the appearance of objects as they get farther and farther away? A. More three-dimensional B. More hazy, bluish-gray C. Smaller but more detailed D. Lower in the picture E. Don't know	18%	37%
4. Which background color would make a bright red stand out most? A. Pink B. Orange C. Light gray D. Don't know	40%	62%
5. The purpose of a thing influences its shape. A. True B. False C. Don't know	47%	63%

Exhibit 21

1975 and 1978 Results for the Art and Music Activities Scale, Grades 5 and 11



11th grade students showed more growth in Art and Music Activities from 1975 to 1978 than did the 5th grade students. In this exhibit, no results have been reported for the middle alternative of each item; the percentage of students choosing high participation responses is presented and contrasted with the percentage of students choosing low participation responses. The results indicated a marked difference in the responses of students, with fairly high percentages of students in both high and low participation categories. Undoubtedly, some students are very active and derive real satisfaction from participating in art and music activities, while another large segment of the student population in Utah has either not learned to appreciate the arts or has had negative experiences.

Since art is an optional class in secondary schools, the change from 1975 to 1978 for 11th grade students is probably a general cultural movement rather than being due to any specific art curriculum. In any case, these results indicate a need for additional involvement in the arts and real opportunities for using the arts to bridge to other curriculum areas. Such procedures could be expected to capitalize upon already existing interests of students and to develop their potential in the arts and other curriculum areas.

Further illustrations of the participation and reactions of students to art and music activities can be obtained by examinining Exhibit 22, which presents five selected items from the Art and Music Activities scale and the percentage of students responding to the alternatives for each item at both grades 5 and 11. One of the

Exhibit 22

1978 Results for Selected Items from the Art and Music Activities Scale, Grades 5 and 11

ITEM	PERCENT OF STUDENTS CHOOSING EACH ALTERNATIVE GRADE 5	GRADE 11
1. How much of your free time do you spend enjoying some kind of artistic activity (making pictures, studying music, ceramics, etc.)?		
A. Almost none	13%	16%
B. A little	10%	15%
C. Some	17%	26%
D. Quite a bit	29%	24%
E. A lot	31%	20%
2. Because of my art experiences in school:		
A. I enjoy a great variety of art.	38%	17%
B. I enjoy some kinds of art.	41%	42%
C. My appreciation for art hasn't changed much.	14%	26%
D. I avoid most art experiences.	7%	14%
3. Outside of school, how much time do you spend studying the arts?		
A. I am not interested in the arts.	10%	17%
B. I spend a few hours a year.	21%	32%
C. I am quite interested in the arts. I spend a few hours a month studying the arts.	33%	32%
D. I am very interested in the arts. I spend a number of hours a week studying the arts.	34%	18%
4. How much do you enjoy and appreciate art?		
A. Not at all	2%	3%
B. Very little	6%	15%
C. Some	21%	37%
D. Quite a bit	29%	30%
E. Very much	42%	16%
5. When art ideas are learned and then used in every day life, they help us to see, enjoy, and appreciate things we've never noticed before. In helping me to do these things, my art experiences have been:		
A. extremely helpful.	23%	13%
B. quite helpful.	39%	35%
C. slightly helpful	30%	38%
D. not helpful at all.	8%	13%

more striking features of this exhibit is the substantial percentage of students, particularly at the 5th grade level, who derive real satisfaction from participating in art and music activities. For example, on item 1, 60% of the students at the 5th grade spent quite a bit or a lot of their time in enjoying some kind of artistic activity. Similar results were obtained on item 4, which inquired about how much the students enjoyed and appreciated art activities; at the 5th grade level, 71% of the students chose one of the two alternatives indicating high appreciation on this item. When these results are viewed in relation to item 2, which specifically describes student reactions to school art experiences, there appears clear evidence that a large percentage of Utah students are positively oriented towards artistic expression and development of their potential in the Aesthetic Maturity area. However, at the 11th grade, the students viewed their art experiences in a less positive light, since in responding to item 5, 51% of the 11th grade students used the "slightly helpful" or "not helpful at all" alternatives in describing their art experiences.

As stated in 1975, the results of the Art and Music Activities section of the survey point out quite vividly that many students in the State of Utah are really interested in aesthetic pursuits despite modest levels of achievement. This interest should be capitalized upon in making Aesthetic Maturity a more important part of the educational process.

Correlates of Music Achievement--
Individual Student Level of Analysis

Primarily because of psychometric characteristics, the Music Achievement scale was selected as the key reporting variable from the Aesthetic Maturity Goal area. These considerations were based on the sensitivity of the measure to individual differences and the meaningful pattern of relationships that was obtained between this scale and the other measures included in the Statewide Assessment battery. In considering these relationships, the Music Achievement scale demonstrated similar patterns on both grades 5 and 11; thus, the results for these two grades will be presented together.

Analysis of the relationships of the Music Achievement scale with other measures included in the battery indicated that students who were above average on Music Achievement also tended to be above average on other achievement measures, including the CTBS Mathematics and Reading scores (r's in the .40s and .50s) and Art achievement (r's of about .48). While these relationships were moderately high, they still indicate the importance of separate measuring instruments for each of the goal areas. On the other hand, these relationships do provide some evidence of general intellectual skill, perhaps including test-taking ability, as students who were above average on one achievement area also tended to be slightly above average on achievement measures in other goal areas.

The Music Achievement scale had a pattern of low but statistically significant relationships with the various measures of Emotional

Maturity. The strongest relationship here was between Music Achievement and Academic Self-Concept (r = .34 at grade 5 and .31 at grade 11). These relationships with the Emotional Maturity scales indicated a tendency for students who did well on Music Achievement to have a relatively healthy outlook on themselves and life in general. While no direct statements of causation can be made from these relationships, the results certainly indicate that development of individual potential in the various goal areas is interrelated.

The Music Achievement scale also had a low significant relationship with Peer Relations. This relationship with the Social Maturity area indicated that students who were high on Music Achievement tended to be respected and enjoyed by their peers.

At both grade levels, the Music Achievement scale had a significant relationship with the Art Achievement score, as mentioned previously, and, equally or more important, had a significant relationship with the Art and Music Activities scale (r = .37 at grade 5 and .51 at grade 11). This indicated that students who have a positive attitude toward aesthetic activities and participate in such activities generally had higher scores on the Music Achievement test. In view of the previously reported findings concerning the varied levels of participation of students at grades 5 and 11 on Art and Music Activities, these results suggest that student participation in aesthetic activities was related to the student's knowledge of music.

The Music Achievement scale also had statistically significant

relationships (r = .20 at grade 5 and .25 at grade 11) with the Independent Development scale from the Productive Maturity area, indicating that students who were active in independent learning outside of the school system also tended to be slightly higher in Music Achievement.

Relationships with Educational Process Measures

At the classroom level of analysis, the relationships between mean classroom scores on Music Achievement and the other measures were examined. The results typically followed the pattern which has been found at the individual level.

Two of the process measures (Development of Career Talents and Expectations) had statistically significant relationships with the Music Achievement scale. The relationship of the Expectations scale followed that reported in the Intellectual Maturity area--when higher levels of performance were expected by the teacher, the students did perform at higher levels. The generality of this finding across achievement areas supports the importance of the Expectations scale.

Demographic Correlates of Music Achievement

The correlations of the Music Achievement scale with the demographic variables were important. Relatively high relationships were found between Music Achievement and the Socioeconomic Status

control measures (r = .43 at grade 5 and .44 at grade 11). These results indicated that knowledge in the aesthetic area can, at least partially, be explained by the affluence of the student's family. As the goal implies, aesthetic maturity should not be a luxury that can be afforded by only a small portion of the population, but should be an important part of each person's life.

Music Achievement was also related to other demographic variables which were associated with SES. For example, whites scored slightly higher on Music Achievement than did other racial groups. The differences in rural, urban, and suburban schools on Music Achievement were small, which was in contrast to the results obtained on 11th grade students for the standardized achievement measures. The small rural schools have been as effective as their urban counterparts in developing the Aesthetic Maturity of students.

Summary

This chapter reported the results from the Aesthetic Maturity portion of the Statewide Assessment. The Music Achievement, Art Achievement, and Art and Music Activities scales were described, the relationships of the Music Achievement scale to other measures in the project were discussed, as were the classroom and school variables associated with Aesthetic Maturity. The results of this portion of the project included the following:

1) On both Music Achievement and Art Achievement, the 11th grade students performed at higher levels than the 5th grade students.

2) There was clear evidence of growth in Music Achievement from 1975 to 1978 for 5th grade students.

3) The level of interest and participation in aesthetic pursuits was high among Utah students, although many students have not been involved in such activities. This high interest level should be used to make Aesthetic Maturity a more important part of the educational process, not only to develop potential in the arts, but also to bridge to more traditional academic areas.

4) The instructional strategy which had the most significant relationship with Music Achievement was Expectations, i.e., classes in which students reported that they were expected to learn a lot and do their best had higher levels of music achievement.

5) Socioeconomic Status played an important role in explaining Art Achievement and Music Achievement; action should be taken to ensure that all students in the state have an adequate opportunity to develop their aesthetic capabilities.

CHAPTER VIII

RESULTS FROM THE PRODUCTIVE MATURITY GOAL AREA

> A person's productive maturity is exemplified by a continuing involvement in the creating, generating, and using of ideas, goods, and services beneficial to humanity and satisfying to the individual. (Utah State Board of Education, 1973)

The general objectives which would lead to the attainment of this goal indicate that the individual should discover, develop, and use his or her full potential in personal, social, and occupational areas.

Description of the Measurement Instruments

During the 1975 Statewide Assessment, potential measures for the Productive Maturity Goal area were reviewed, and the best use of testing time and measurement coverage could be achieved by using a somewhat different set of assessment instruments for the two grade levels. Three of the four measures for the Productive Maturity Goal area came directly from the 1975 Statewide Assessment. A fourth scale was devised specifically for the 1978 Assessment.

For both grades 5 and 11, an expanded version of a previously existing measure--Independent Development--was revised and constructed in 1975. Relevant data for the construction of the measure

were available from a number of studies completed by IBRIC. The final scale was a measure of the extent to which students independently participate in self-initiated learning activities which increase their general competence. Students with high Independent Development scores reported that they often extended the scope of material learned in school by working on something at home to learn more about it, visited the library to get additional information not needed for classwork, read an advanced text to learn more about a subject, and studied mathematics or science out of school. They also worked on some mechanical equipment to learn more about it, read extensively in different subject matter areas, and worked at developing their writing skills, etc. Because of the general breadth and significance of this scale for the Productive Maturity Goal area, Independent Development was constructed to be appropriate for both 5th and 11th grade students and was the key scale for this goal area.

In addition to this scale, other measures were selected and developed for use at the 11th grade. A scale on Career Awareness and Exploration was included in the 11th grade assessment, with four appropriate items from this area also used for grade 5. This specially developed measure assessed whether students had given some thought to and had some experiences related to career choice. High-scoring students more often reported that they had considered what kinds of training or education were necessary for certain jobs, had made some plans about how much education they wanted after high

school, and had made some definite plans about a future career or job. Typically, high-scoring students also indicated that they had taken an interest or ability test and had the results explained to them, had investigated the requirements for an occoupation in which they were interested, and had considered what kind of work would provide them an opportunity to use their talents and abilities.

The third measure used at the 11th grade level was Career Development Experience. Three items from this scale were administered to the 5th grade students. This scale was specially constructed for the 1975 Statewide Assessment and focused on activities and experiences provided by the school, rather than initiated by the individual student. A high score on this scale indicated a high level of student participation in numerous school activities which examined and evaluated career possibilities during the school year. These activities included: comparing jobs on the basis of training requirements and other considerations; studying how different jobs might influence one's life; preparing a summary of job qualifications; studying how hobbies and spare time interests could be helpful in getting a job; etc.

The fourth and final measure at the 11th grade for the Productive Maturity Goal area was the Economic Awareness and Consumer Competence scale. This cognitive scale was new to the 1978 Statewide Assessment and consisted of items concerning the free market system, unemployment, job characteristics, unit pricing, nutrition, personal finance, etc. The majority of the items in the Economic

Awareness and Consumer Competence scale was especially constructed for the 1978 Statewide Assessment, the remaining items were obtained from National Assessment of Educational Progress (1977). Five items from this area were also applicable for the 5th grade.

Results for the Independent Development Scale

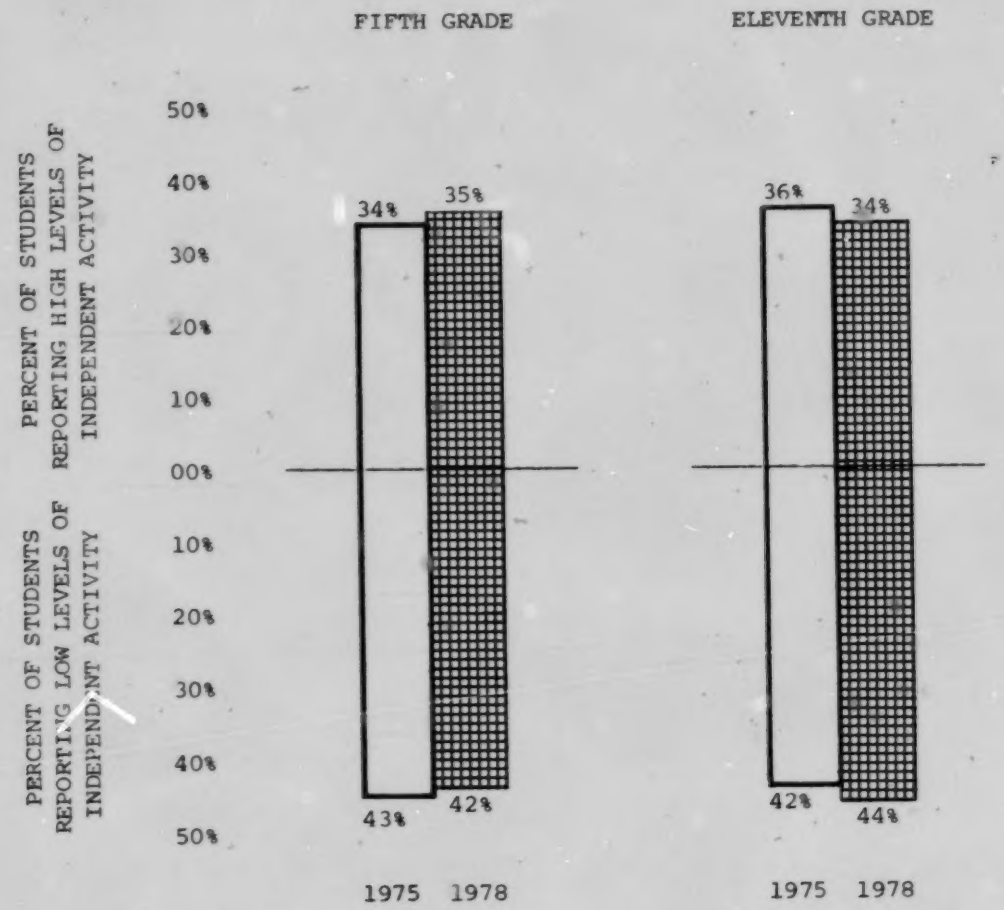
Since the Independent Development scale was prepared specifically for the Statewide Assessment, there were no national norms available against which the Utah sample could be compared. However, extensive information is available concerning the results for the Utah students at each grade level during both the 1975 and 1978 Statewide Assessments and how this measure related to other variables.

Exhibit 23 shows the percentage of students at both grade levels reporting high and low levels of independent activity for each assessment completed. Differences between grade levels and assessments were not marked. Slightly over one-third of the students reported high levels of independent activity; however, a larger portion (over 40%) reported low levels of participation in these self-initiated learning activities. Approximately two in five students are apparently not motivated toward independent development.

Although the total percentages on Independent Development were similar for grades 5 and 11, there were marked differences in responses to specific items within the scale. Examples of items from the Independent Development scale, along with the percentage

Exhibit 23

1975 and 1978 Results for the Independent Development Scale, Grades 5 and 11

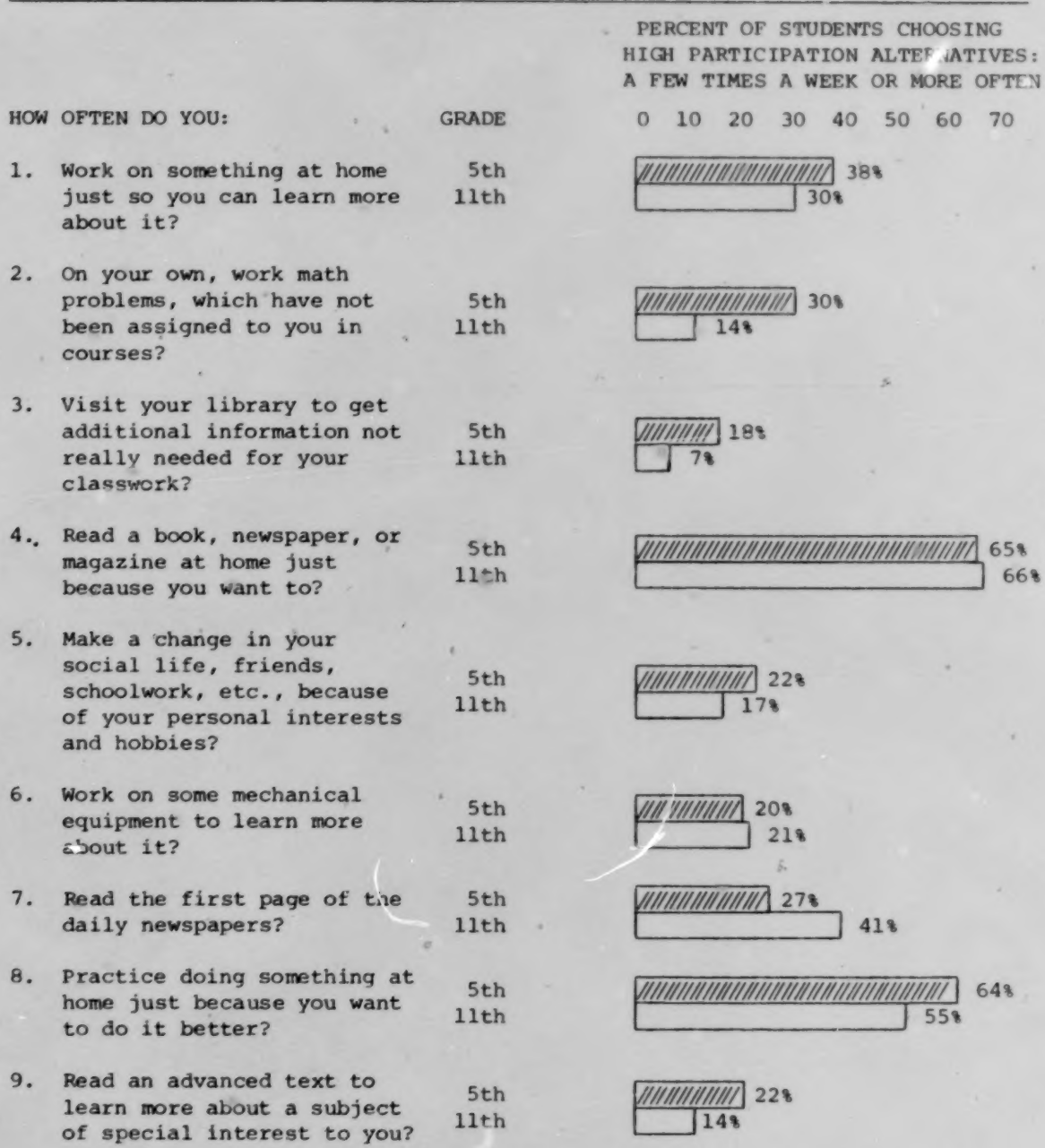


of students at each grade level choosing the two most positive alternatives, are presented in Exhibit 24. For most of the items, the percentage of students engaging in the various activities is relatively small. On only a few items is the percentage of students who reported participating in these self-initiated learning activities a few times a week or more over 50%. For example, on the first item, approximately 38% of the Utah 5th grade students studied or worked on something at home just so they could learn more about it a few times a week or more often. At the 11th grade level, the percentage was only 30. For the majority of these items, the 5th grade students were more actively engaged in independent learning activities than were the 11th grade students. On items 4 and 7, which deal with reading magazines and newspapers, and item 6 dealing with mechanical equipment, the 11th grade students did exceed the 5th grade students in the extent of their participation, as might be expected for these particular items. On the balance of these example items, the 5th grade students had slightly higher levels of participation.

These results suggest the obvious question of whether schools can stimulate higher levels of independent learning. Stated alternately, what kinds of school activities or student characteristics are associated with high participation in independent learning activities? A later section of this chapter on the correlates of Independent Development will provide some information to help answer these questions.

Exhibit 24

1978 Results for Selected Items from the Independent Development Scale, Grades 5 and 11


PERCENT OF STUDENTS CHOOSING HIGH PARTICIPATION ALTERNATIVES: A FEW TIMES A WEEK OR MORE OFTEN
HOW OFTEN DO YOU:
GRADE
0 10 20 30 40 50 60 70
1. Work on something at home just so you can learn more about it?
5th 38%
11th 30%
2. On your own, work math problems, which have not been assigned to you in courses?
5th 30%
11th 14%
3. Visit your library to get additional information not really needed for your classwork?
5th 18%
11th 7%
4. Read a book, newspaper, or magazine at home just because you want to?
5th 65%
11th 66%
5. Make a change in your social life, friends, schoolwork, etc., because of your personal interests and hobbies?
5th 22%
11th 17%
6. Work on some mechanical equipment to learn more about it?
5th 20%
11th 21%
7. Read the first page of the daily newspapers?
5th 27%
11th 41%
8. Practice doing something at home just because you want to do it better?
5th 64%
11th 55%
9. Read an advanced text to learn more about a subject of special interest to you?
5th 22%
11th 14%

Results for the Career Awareness and Exploration Scale

This measure was specially constructed and dealt with the individual's level of maturity and awareness in making effective career decisions. There were 21 items in this scale for the 11th grade. Four items were used at the 5th grade. The percentages of 11th grade students reporting high and low levels of Career Awareness and Exploration activities for both the 1975 and 1978 assessments are shown in Exhibit 25. Results on the common items are presented in Exhibit 26 to allow comparisons between the 5th and 11th grades.

The results presented in Exhibit 25 show a slight improvement in students' exploring and becoming aware about career opportunities--the 1978 Assessment showed 59% of the students reporting high levels of participation in these activities compared to 55% in 1975. However, this improvement represented a shift from the neutral response to higher levels of participation; in 1978 as in 1975, clearly one-third of the 11th grade students have devoted little attention to or have received little assistance with finding out about and planning a future career.

When administering questions of this kind to students in the 5th grade, a certain amount of caution is necessary in interpreting the results, since their responses may reflect some distortion due to their lack of experience and stage of development. On the other hand, the results shown in Exhibit 26 indicate some frankness and objectivity by all students responding to the various items. To

Exhibit 25

1975 and 1978 Results from the Career Awareness and Exploration Scale, Grade 11

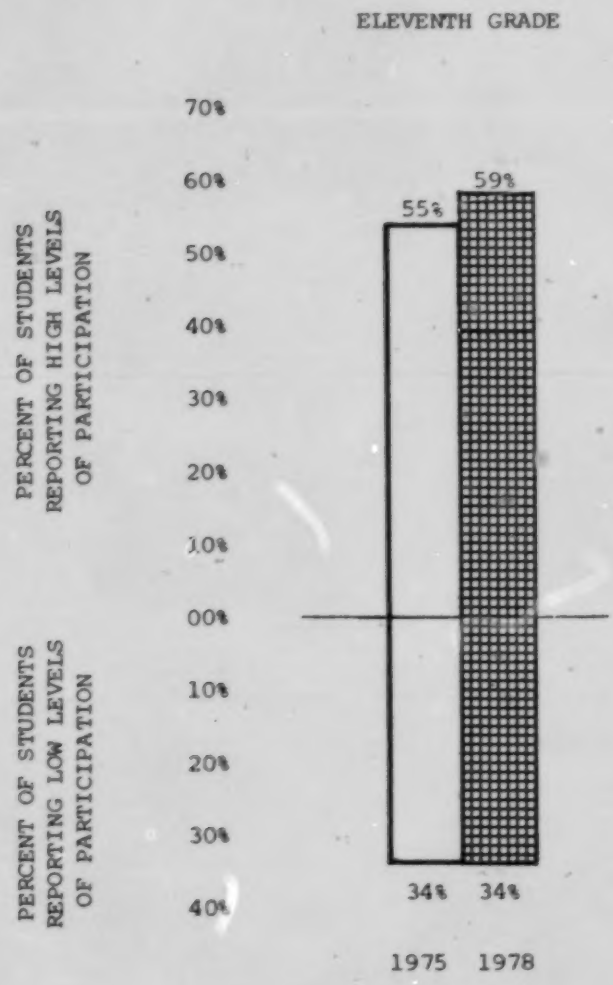


Exhibit 26

1978 Results for Selected Items from the Career Awareness and Exploration Scale, Grades 5 and 11

ITEM	PERCENT OF STUDENTS CHOOSING EACH ALTERNATIVE GRADE 5	GRADE 11
1. Would you say that your job future is:		
A. Very poor	2%	1%
B. Poor	3%	2%
C. Uncertain	19%	21%
D. Good	37%	48%
E. Very good	39%	27%
2. Have you decided upon a job or a career?		
A. Have not thought about it	10%	3%
B. Have a few ideas	38%	29%
C. Have made some tentative plans	13%	18%
D. Have made some plans and decisions	22%	36%
E. Have made definite plans and decisions	17%	14%
3. Have you decided about how much education, if any, that you want to obtain after high school?		
A. Have not thought about it	19%	6%
B. Have a few ideas	28%	27%
C. Have made some tentative plans	13%	21%
D. Have made some plans and decisions	20%	30%
E. Have made definite plans and decisions	20%	16%
4. What kind of work would provide you with an opportunity to use your talents and abilities?		
A. Haven't thought about it	21%	9%
B. Have thought about it a little	34%	32%
C. Have thought about it a lot	45%	59%

illustrate, 76% of the 5th grade students believed their job future was good or very good, while at the 11th grade level, the percentage was 75.

On item 2, 10% of the 5th grade students had not thought about a job or career, while only 3% of the 11th grade students so responded. The 14% of 11th grade students who chose the alternative "have made definite plans and decisions" were probably more realistic and practical in their responses than were the 17% of the 5th grade sample. On question three, 19% of the 5th grade students had not thought about post high school education, while only 6% of the 11th grade students made this choice. In general, the 11th grade students had progressed toward making plans and some decisions about their future education.

On the last question, which requested the students to respond about what kind of work would provide them with an opportunity to use their talents and abilities, 41% of the 11th grade students responded that they had thought about it "a little" or less. While this indicates a higher level than on the 5th grade sample (55%), a large number of Utah students have not seriously considered the kind of work that would best use their talents and abilities.

Results for the Career Development Experience Scale

This scale was focused on student participation in school activities rather than upon the student's personal career plans and activities, and, as such, provided an indication of how much emphasis

is given to career development as part of the school curriculum. Eleventh grade results on the ten items making up the Career Development Experience scale for both the 1975 and 1978 Assessments are shown in Exhibit 27. These results are somewhat disturbing in that over one-third of the 11th grade students reported no participation in the career assignments and other school activities covered in this scale. About two-thirds of the students reported at least some participation. Also disturbing is the fact that the levels of participation tended to go down from 1975 to the 1978 Assessment.

Three items from this scale were included at the 5th grade level, and results on these plus three additional items from the 11th grade scale are presented in Exhibit 28. Shown are the percentage of students responding to each alternative to each item. On the items which were common for both grade levels, there were relatively small differences in the 5th and 11th grade results. This was a somewhat disappointing finding in that the 11th grade students should have had considerably more exposure to Career Development Experience activities as they progressed through the educational system. The item that showed the most difference between the 5th and 11th grades was item 3, which requested the students to indicate how often they had studied how different jobs might influence their lives. On this item, 27% of the 11th grade students responded that they had studied this a number of times, while only 17% of the 5th grade students so responded. At the other end of the scale, 81% of the 5th grade students and 73% of the 11th grade students responded that they had studied how different jobs might

Exhibit 27

1975 and 1978 Results for the Career Development Experience Scale, Grade 11

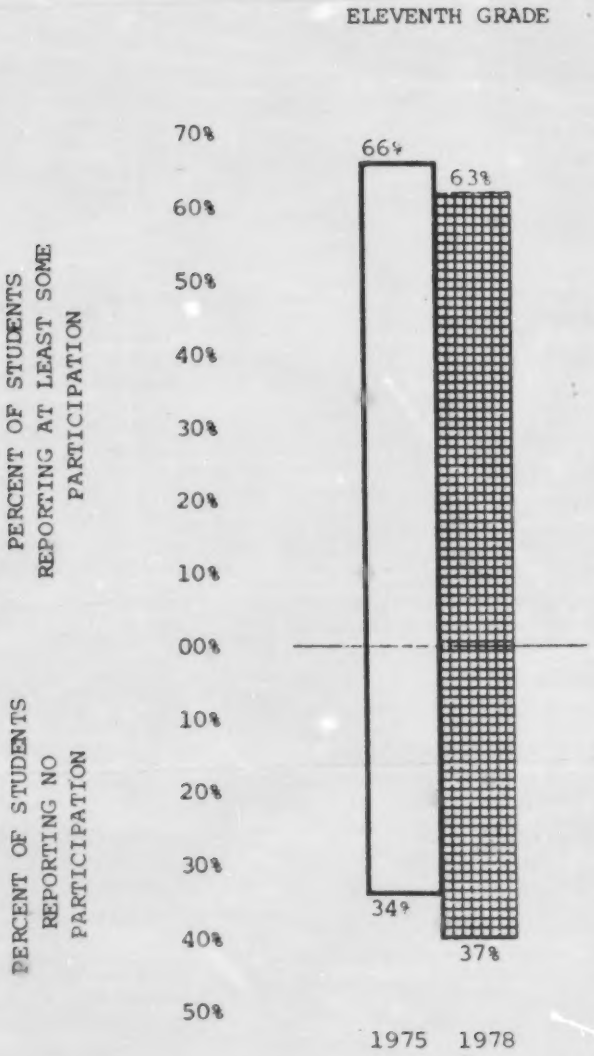


Exhibit 28

1978 Results for Selected Items from the Career Development Experience Scale, Grades 5 and 11

ITEM	PERCENT OF STUDENTS CHOOSING EACH ALTERNATIVE GRADE 5	GRADE 11
How often have you done the following activities during this school year?		
1. Studied different jobs and how much education and training they require?		
A. Not at all	31%	17%
B. At least once or twice	47%	52%
C. A number of times	21%	31%
2. Studied how jobs might change in the next ten years?		
A. Not at all	43%	44%
B. At least once or twice	40%	41%
C. A number of times	17%	15%
3. Studied how different jobs might influence your life?		
A. Not at all	40%	21%
B. At least once or twice	41%	52%
C. A number of times	17%	27%
4. Studied how jobs may differ in terms of opportunities for advancement, security, etc.?		
A. Not at all		27%
B. At least once or twice	*	47%
C. A number of times		25%
5. Studied how fast subject matter information changes as new knowledge is discovered?		
A. Not at all		58%
B. At least once or twice	*	35%
C. A number of times		7%
6. Compared the good and bad things of two different jobs?		
A. Not at all		22%
B. At least once or twice	*	48%
C. A number of times		30%

*Items not available at 5th grade.

influence their lives only twice or less during this school year, a finding which suggests that greater emphasis could be given to this area of the curriculum. The same phenomenon generally held for items 1 and 2, which also showed that a fairly large percentage of students had not been intensively exposed to career development experiences during their schooling.

On items 4, 5, and 6, where only 11th grade data were available, a similar picture emerges. Apparently the majority of students in Utah schools do not gain sufficient information about jobs through the educational system. These findings raise the question of whether greater emphasis on career planning and decision-making should be integrated into all parts of the curriculum rather than reserved for special programs or classes.

While the results on the Career Development Experience items appear to point out worthwhile areas for attention to foster higher levels of student development, other available information indicated that some cautions may be in order. For example, in the 1975 Assessment, schools with high average scores on the Career Development Experience scale tended to have unfavorable scores on Internal Control, External Control, Aggression, and Anxiety. These earlier results, in conjunction with those obtained here, indicated that more attention could well be devoted to the Productive Maturity Goal area within the Utah educational system; however, care must be taken to promote growth in the other goal areas as well.

Results for the Economic Awareness and Consumer Competence Scale

This cognitive measure was concerned with knowledge about elementary economic principles, facts relevant to being an effective consumer of goods, and basic characteristics of a variety of specific occupations. The total score, available only for the 11th grade, was based on 22 items. Five selected items from this scale were also administered to the 5th grade sample. Since the scale was specially constructed for the 1978 Assessment, comparisons of results to 1975 can not be made.

The results obtained on selected items from the Economic Awareness and Consumer Competence scale are presented in Exhibit 29. Results are shown for both grades 5 and 11. Looking at the percentages responding correctly across all five items shows a strong general maturation trend with 11th graders consistently responding correctly more often. Sixty-one percent of the 5th grade students and 83% of those at the 11th grade were correct in responding that having selling skills can still be an important attribute. The least known item shown on Exhibit 29 was number 2, dealing with comparative cost per unit of two products--less than half of the 5th grade students and three-fourths of the 11th grade students responded correctly. The remaining three items in the exhibit deal with various aspects of nutrition and were generally well-known by the students, especially at the 11th grade, where about 90% responded correctly.

In general, the results on the Economic Awareness and Consumer

Exhibit 29

Results for Selected Economic Awareness and Consumer Competence Items, Grades 5 and 11

ITEM	PERCENT OF SAMPLE RESPONDING CORRECTLY	
	GRADE 5	GRADE 11
1. In this day and age, having selling skills is not important.		
A. True B. False C. Don't know	61%	83%
2. If one box of cereal contains 20 ounces and sells for 80¢ and another contains 9 ounces and sells for 39¢, which has the lower cost per ounce?		
A. The larger one B. The smaller one C. Don't know	45%	76%
3. Two snack foods are available--Brand A and Brand B. Brand A contains sugar, salt, spices, and food coloring, while Brand B contains wheat, honey, and seasoning. Which contains the most food value?		
A. Brand A B. Brand B C. Don't know	79%	94%
4. The only way to get enough protein is to eat a lot of red meat.		
A. True B. False C. Don't know	73%	89%
5. Only the very poor people in this country suffer from poor nutrition.		
A. True B. False C. Don't know	63%	92%

Competence items were favorable, with demonstrated maturation effects, i.e., 11th grade students responded correctly more consistently than did 5th grade students. One specific recommendation from this section would be for the schools to place emphasis on learning about comparing costs per unit when making decisions about purchasing products--an important concept for the consumer.

Results on Additional Productive Maturity Items

To supplement the items in the various scales pertaining to Productive Maturity previously discussed, several items relating specifically to objectives of the Career Education Unit of the State School Office were asked, primarily of the 11th grade students. Results from these items indicated that, while some of the goals in career education were being met within the state, there are real opportunities for improvement. For example:

> 74% of the 11th grade students responded that they had not participated in work observation as a way of learning about a job during the school year.
>
> The great majority (78%) of the 11th grade students have not received help from the school in planning one-year and three-year courses of study related to a tentative career choice.
>
> 74% of the 11th grade students reported that they had visited their school's career resource center or used materials from the center less than once a term--an additional 11% reported that their school had no career resource center.
>
> Parental involvement in educating students about jobs is fairly low as only 10% of the 11th and 21% of the 5th grade students reported either of their parents having visited the school to describe their job activities to the class.

Most (59%) of the 11th grade students reported that they did not have a specified career goal on record at the school.

Only 44% of the 11th grade students felt sure that their school provided enough training opportunities for them to get a good full-time job after graduation.

These results indicate a need for more emphasis within the schools on preparing students to engage in work as a part of their way of living.

Correlates of Independent Development-- Individual Student Level of Analysis

Since the relationships between the Independent Development scale and the other measures included in the Statewide Assessment were similar for the 5th and 11th grades, they will be discussed together. The relationships between the Independent Development scale and the Intellectual Maturity measure of Mathematics were very limited on the 5th grade ($r = .12$), and only slightly higher on the 11th grade ($r = .15$). Similar results were obtained with the total Reading score at the 5th grade level; the relationship between Independent Development and total Reading at the 11th grade level was somewhat stronger ($r = .25$). These data indicated that students with high Independent Development scores may have been participating in activities which they defined as important, but which had only limited benefit in improving mathematics achievement test scores. Perhaps some benefit in reading achievement was obtained at the higher grade level.

Generally, the picture of students who scored high on Independent Development and were effective in self-initiated learning outside of the school system is one of positive mental health as manifested by generally moderate relationships between this scale and the Emotional Maturity scales. As in the 1975 Statewide Assessment, Autonomy had the highest relationship with Independent Development ($r = .49$ at grade 5 and .51 at grade 11). These relationships supported the validity of the measures, because one who was high on independent, self-initiated learning would also be expected to be self-sufficient and self-directing. The self-initiated learner was also above average on the other Emotional Maturity scores--Academic Self-Concept and Self-Acceptance.

The Social Maturity area scales of Peer Relations (5th and 11th grades) and Extra-Curricular Activities (11th grade only) also had generally moderate relationships with the Independent Development scale, suggesting that the students who were high on self-initiated learning were also well-respected and enjoyed by their peers and were active in the school.

All three measures of the Aesthetic Maturity Goal area had significant relationships with the Independent Development scale. The most strongly related was the Art and Music Activities scale ($r = .50$ at grade 5 and .48 at grade 11), a finding which illustrated the interrelated nature of student development in these areas.

In comparison to the relatively strong relationship between Socioeconomic Status and the Intellectual Maturity scales,

Independent Development had a lower relationship (r's in the .20s) with SES, indicating a tendency for students from high socioeconomic status families to be more involved with self-initiated learning activities.

Correlates of Independent Development--
Grade 5--Classroom Level of Analysis

For the classroom level of analysis, the scores of individual students within classrooms were averaged and these averages were intercorrelated. Generally, the results obtained from the classroom level of analysis paralleled those obtained at the individual level.

Three of the process measures--Reinforcement of Self-Concept, Classroom Participation, and Development of Career Talents--had significant relationships with the Independent Development score; missing were the Individualization of Instruction scale and the Expectations scale, concerning the amount of learning expected within a classroom. The process scores with the highest relationships with Independent Development were Reinforcement of Self-Concept ($r = .30$), Classroom Participation ($r = .38$), and Development of Career Talents ($r = .49$). All of these measures involved some concern and recognition for the individual student's capabilities. These results pointed out teaching strategies associated with higher levels of Independent Development, strategies that should be seriously considered by educators to promote higher levels of learning outside the classroom.

Demographic Correlates of Independent Development

As mentioned earlier in this chapter, the Productive Maturity measure of Independent Development correlated in the mid to upper .20s with Socioeconomic Status. The Economic Awareness and Consumer Competence scale also had a significant relationship with SES ($r = .40$) on the 11th grade sample. These results suggest opportunities for improvement in the Productive Maturity Goal area for low income students. None of the school classification variables had an appreciable influence on the Independent Development score at either grade level. The measures which showed no meaningful effect included school size and the rural, suburban, and urban location variables.

Summary

Four different scales for this goal area were administered to 11th grade students; only one of these--Independent Development--was also administered to the 5th grade students. Selected items from the Career Awareness and Exploration scale, the Career Development Experience scale, and the Economic Awareness and Consumer Competence scale were administered to the 5th grade students; but these scales were designed primarily for 11th grade students. The results of the measures for this goal area are briefly listed below:

1) The number of students who actively participated in self-initiated learning activities--Independent Development--was relatively small. The 5th grade and 11th grade students had very similar

average scores on this measure, and there was no change from 1975 to 1978 at either grade level.

2) Utah 11th grade students have made some plans and decisions about their future education and careers, but much more effort could be directed toward increasing such career planning activities throughout the curriculum in Utah schools.

3) The students, especially at the 11th grade level, showed favorable levels of knowledge on the Economic Awareness and Consumer Competence scale.

4) Definite opportunities for improvement were apparent in such career education areas as students having planned courses of study related to tentative career choices, student use of career resource centers, parental involvement, etc. In general, students did not feel that schools provide sufficient training for employment after graduation.

5) The students who scored at high levels on the Independent Development scale tended to have high scores on Academic Self-Concept, Peer Relations, and Music Achievement.

6) Examples of instructional strategies related to higher levels of Independent Development were Reinforcement of Self-Concept, Classroom Participation, and Development of Career Talents.

7) Socioeconomic Status had a significant relationship with Independent Development, but was not a primary explanatory variable for this goal area.

CHAPTER IX

RESULTS FOR ENJOYMENT OF SCHOOL

Enjoyment of school is an important concern for Utah educators. The Enjoyment of School scale developed especially for the 1975 study was based on the student's reported overall enjoyment of school. High scores on this scale indicated that the students almost always did a lot of things in school that they enjoyed, often got excited about what was happening in class, and often studied something they enjoyed learning about. High-scoring students also reported that time passed quickly while they were in school and that they would not want to transfer to a different school if given the chance.

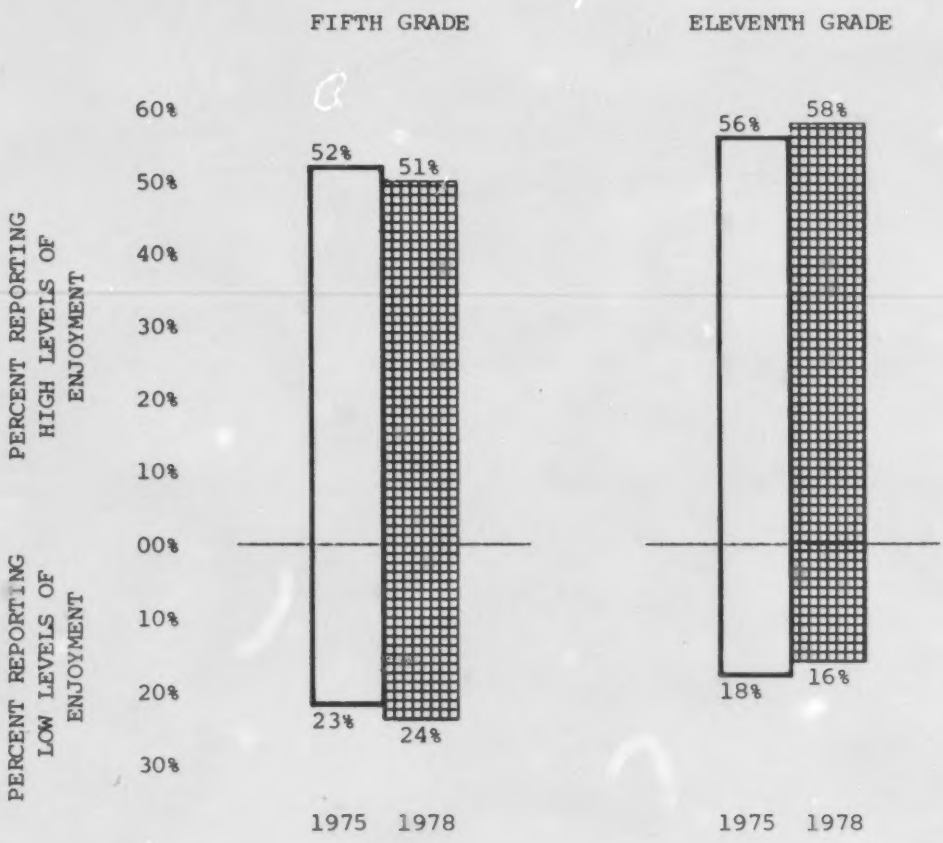
Results for the Enjoyment of School Scale

A comparison of 1975 and 1978 results for 5th and 11th grade students on the Enjoyment of School scale is presented in Exhibit 30. As in most other exhibits, the average percentage of students choosing the two most positive alternatives is contrasted with the percentage choosing the two least favorable alternatives. The results indicate essentially no change from 1975 to 1978 at either grade.

The results indicated that 11th grade students were more

Exhibit 30

1975 and 1978 Results for the Enjoyment of School Scale, Grades 5 and 11



positive about school than were the 5th grade students. Evidently, as students mature, they come to view the educational process in a somewhat less negative fashion. An alternate explanation is that those students expressing dissatisfaction at the 5th grade are no longer in the school system at grade 11, because their dislike for school has resulted in their dropping out or seeking alternative forms of education.

Four selected Enjoyment of School items are presented in Exhibit 31 with results for the 5th and 11th grades. The 5th grade students tended to be more varied in their responding than 11th graders, with a higher percentage choosing alternatives at each extreme of the scale. For example, on item 1, 29% of the 5th grade students studied answered "almost always" to describe how well they liked school; whereas, on the alternative "almost never", the percentage was 14. In contrast, for the 11th grade students, these percentages were 22 and 4, respectively. While the percentages for these questions can be perceived as generally encouraging, i.e., most of the 5th grade students reported that they usually or almost always like school, the percentage choosing the D and E alternatives was sometimes disturbing. For example, from item 1, 24% of the 5th grade students do not like school very often. This represents an important challenge to Utah educators to make the learning experiences and time in school more enjoyable for these students. Item 3 presents a similar picture, as 25% of the 5th grade students responded that they disliked school and would be glad to finish or were often a little unhappy with school.

Exhibit 31

1978 Results for Selected Items from the Enjoyment of School Scale, Grades 5 and 11

ITEM	PERCENT OF STUDENTS CHOOSING EACH ALTERNATIVE GRADE 5	GRADE 11
1. Do you like school?		
A. Almost always	29%	22%
B. Usually	20%	40%
C. Sometimes	27%	26%
D. Not very often	10%	8%
E. Almost never	14%	4%
2. How often do you study something at school that you really enjoy learning about?		
A. Two or more times a day	33%	33%
B. About once a day	34%	35%
C. Once or twice a week	17%	20%
D. A few times a month	8%	9%
E. Almost never	8%	4%
3. How do you feel about school?		
A. Like it very much	18%	13%
B. Like it most of the time	42%	57%
C. Just accept it as necessary	16%	20%
D. Am often a little unhappy with it	9%	5%
E. Dislike it and will be glad to finish	16%	5%
4. Overall, I would say the time I have spent in school has been:		
A. very enjoyable.	15%	17%
B. enjoyable.	31%	51%
C. so, so.	39%	27%
D. pretty boring.	8%	4%
E. very boring.	6%	1%

Relationships with Other Measures

The importance of the Enjoyment of School scale can be illustrated further by considering its pattern of relationships with measures of the other goal areas. Without exception, the relationships of the Enjoyment of School scale were in the positive direction with all other indicators included in the Statewide Assessment battery. That is, students who scored high on the Enjoyment of School scale had higher than average scores on the other scales, including the achievement measures and the key measures from each goal area. However, these relationships were not very strong. For example, the highest relationship between Enjoyment of School and the key goal area measures was with the Academic Self-Concept scale from Emotional Maturity (r = .37 for the 5th grade and .47 for the 11th grade). Enjoyment of School had modest relationships with the Peer Relations scale from the Social Maturity Goal area (r's in the high .30s) and with the Independent Development scale from the Productive Maturity Goal area (r's also in the high .30s) and fairly low relationships with the Mathematics Total score from Intellectual Maturity (r = .19 for 5th grade and .20 for 11th grade) and with Music Achievement from Aesthetic Maturity (r = .20 for the 5th grade and .23 for the 11th grade).

At the 5th grade classroom level, the relationships between classroom average scores on Enjoyment of School and the educational process measures were examined. The Enjoyment of School scale had statistically significant positive relationships with the educational

process measures of Reinforcement of Self-Concept, Classroom Participation, and Development of Career Talents. Of particular note was the high relationship ($r = .40$) between Reinforcement of Self-Concept and Enjoyment of School. In those classrooms in which the students were made to feel good about their classwork, heard when they did a good job, were made to feel important, etc., the students had higher Enjoyment of School scores.

In view of the significant relationships obtained between the educational process measures and the Enjoyment of School measure, higher levels of performance on the Enjoyment of School score appeared attainable through the use of selected instructional strategies. Since the Enjoyment of School scale did have a consistent pattern of positive relationships with the key measures from the other goal areas studied, such results could have an important payoff in the development of Utah students.

The Enjoyment of School scale had limited relationships with the demographic variables. The scale was slightly related to Socio-economic Status, with a tendency for students from higher income homes to report slightly higher Enjoyment of School scores. The school variables had limited relationships with Enjoyment of School, with the larger high schools in urban centers having a slight advantage for their students.

Summary

The Enjoyment of School scale measured the students' perceptions

of the degree to which the school experience was enjoyable, interesting, exciting, etc. The more important results of the assessment of this area are summarized below:

1) A large percentage of the Utah students studied reported that they enjoyed school; 11th grade students reported greater enjoyment than 5th graders.

2) There was no meaningful pattern of change on the Enjoyment of School scale from 1975 to 1978.

3) Enjoyment of School had statistically significant positive relationships with all key measures included in the study.

4) Classrooms in which the students reported high levels of Reinforcement of Self-Concept, Classroom Participation, and Development of Career Talents had students with above average Enjoyment of School scores.

5) Demographic measures were largely independent of the Enjoyment of School scale; however, there was a trend for students from high income homes to report enjoying school more.

CHAPTER X

EDUCATIONAL PROCESS MEASURES

Information from students was used to obtain the educational process data. These data were only included in the Assessment battery for 5th grade students; the items resulted in five subscores based on student descriptions of classroom practices. These measures were not used in the 1978 Assessment on 11th grade students, since the school performance measures were influenced by many teachers and the older students were more mature in their development and less easily influenced by an individual teacher.

Description of the Measurement Instruments

The inclusion of specially constructed educational process measures in the Statewide Assessment made the project unusually comprehensive in its coverage. Four of these educational process measures--Individualization of Instruction, Reinforcement of Self-Concept, Classroom Participation, and Development of Career Talents--were available from previous studies by IBRIC, and were modified for the 1975 study. The fifth process measure--Expectations--was newly constructed for the 1975 Assessment project. All of these measures consisted of multiple-choice items completed by students

to describe specific events and behaviors occurring in the classroom. In describing educational processes, the students are an important source of information, since they are directly affected and have a good opportunity to observe classroom practices. Alternate procedures of classroom observations generally introduce a bias into the measurement situation caused by the observer, and this procedure is exceedingly expensive and impractical for a statewide study.

The items in these educational process scales were developed and selected on the basis of the degree of agreement among students in reporting their observations of classroom events; thus, the scores were generally reliable indicators of the extent to which various teaching practices were used. Brief descriptions of each of these scales follow.

The Individualization of Instruction score was a measure of the degree to which certain procedures were used to adapt curriculum content and learning processes specifically to the individual student's needs. Students in a class with a high average score on this scale reported that they had some choice in their learning activities. They reported that individual students in the classroom "often" or "very often" worked on different learning tasks, and that a number of different activities were often ongoing within the classroom at one time. They also indicated that lessons and assignments were not the same for all students, and that students were often able to choose from different materials when working on an assignment.

The Reinforcement of Self-Concept scale reflected students' perceptions of whether good performances were recognized. High scores indicated that the teacher very often made students feel good about themselves and their schoolwork, and that students very often were told when they had done a good job. The students in the class had a chance to see things other students had done well, were often encouraged to tell each other that they had done a good job, and were proud of the things they did in the class.

A high Classroom Participation score occurred when the students described their classroom as a place of open discussion where all students were encouraged to participate. High scores indicated that the teachers very often encouraged students to speak out and take part in class, to ask questions, and to take part in discussing subjects not closely related to the class subject. A high score also suggested having many activities in the classroom which involved each student's participation.

The Development of Career Talents scale measured the reported amount of training students received in skills which had broader application than immediate academic content. Students in a class with a high average score on this scale reported that they were often involved in evaluation activities, including evaluation of their own work, other events, and ideas. They responded that they often talked about possible aspects of the future, how information learned in the class could be used in different jobs, and how they might use what they were learning in class. They had activities where everyone had to think up new ideas, and where the students

worked together on a group project.

The Expectations scale was a measure of the students' perceptions of the amount of effort required of them in their class. Classes with high average scores in this area had a high percentage of students who reported that their assignments usually required a considerable amount of work and that everyone in the class was expected to do his or her best. High scores also indicated that the students were expected to do a lot of work, to work about as hard as they could, and to try hard to learn all of the material.

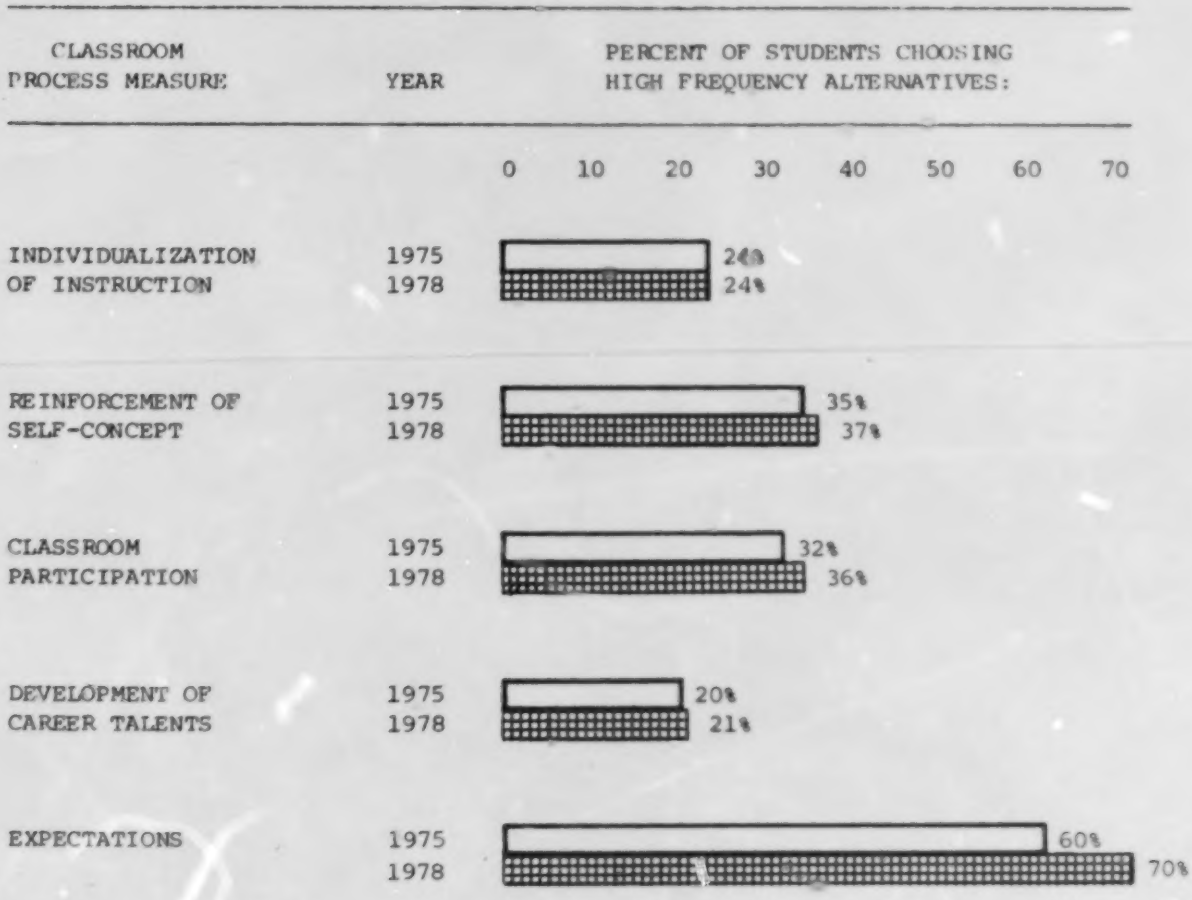
Frequency of Use of Student-Reported Educational Processes

Exhibit 32 shows for 1975 and 1978 the percentage of 5th grade students choosing alternatives that describe high frequency of use for each of the classroom processes measured. The results show little change from 1975 to 1978 for three measures: Individualization of Instruction, Reinforcement of Self-Concept, and Development of Career Talents. Classroom Participation showed a slight increase, from 32% to 36%, and Expectations showed a marked increase, from 60 to 70%. This latter increase is in general agreement with the "back to basics" movement which has been emphasized in recent years, as are the high scores obtained on the achievement measures by 5th grade students.

If the Utah Statewide Assessment program can help to guide or stimulate such positive patterns of growth in Expectations and achievement, then students are the obvious beneficiaries. Real

Exhibit 32

Frequency of Use of Different Instructional Strategies as Indicated by the Educational Process Measures, 1975 and 1978, Grade 5



opportunities for improvement apparently exist with four of the five classroom process measures.

The information concerning how often these teaching strategies were used in Utah schools presented in Exhibit 32 shows that a relatively small percentage of the Utah students studied described the teaching techniques of Individualization of Instruction, Reinforcement of Self-Concept, Classroom Participation, and Development of Career Talents as being "often" or "very often" used in their classrooms. Expectations is apparently much more characteristic of Utah's educational system, as the majority of students used alternatives indicating high frequency for this teaching strategy. However, there were substantial variations between classrooms and between schools on this measure and these differences were associated with different levels of student performance on achievement measures, indicating that higher levels of expectations could be applied in many of Utah's classrooms.

Relationships with Key Outcome Measures

The most important question about the educational process measures described above concerns the relationship between these measures and student outcome measures. To simplify this analysis, the key measures from each goal area were selected and their relationships with the educational process measures were determined. The key measures selected included the CTBS Mathematics Total score from the Intellectual Maturity Goal area, the Academic Self-Concept scale

from the Emotional Maturity Goal area, the Peer Relations scale from the Social Maturity Goal area, the Music Achievement scale from the Aesthetic Maturity Goal area, and the Independent Development scale from the Productive Maturity Goal area. In addition, a measure of an objective which is not directly stated in any of the goals, but which is implied in most of them--the Enjoyment of School scale--was included.

A brief summary of the statistically significant relationships found between these educational process measures and the key measures for each goal area is presented in Exhibit 33. The Individualization of Instruction scale had the least number of statistically significant relationships with the outcome measures, only correlating with Peer Relations. In comparison with the other educational process measures, this relationship was somewhat lower, i.e., this scale and/or the underlying procedures measured were not as powerful as the other process measures. However, this relationship supported the current widespread emphasis on individualization of instruction in Utah schools.

The Reinforcement of Self-Concept scale had significant relationships with all of the key goal area measures, except the Mathematics Total score from the Intellectual Maturity Goal area, and the Music Achievement scale from the Aesthetic Maturity Goal area. This educational process measure was most highly related ($r = .40$) to the Enjoyment of School scale. These results indicated that reinforcement of self-concept is an important aspect of instruction.

Exhibit 33

Relationships of Educational Process Measures to Key Performance Measures for Each Goal Area

EDUCATIONAL PROCESS MEASURES RELATED TO	STUDENT OUTCOME MEASURES
INDIVIDUALIZATION OF INSTRUCTION	Social Maturity: Peer Relations
REINFORCEMENT OF SELF-CONCEPT	Emotional Maturity: Academic Self-Concept Social Maturity: Peer Relations Productive Maturity: Independent Development Enjoyment of School
CLASSROOM PARTICIPATION	Social Maturity: Peer Relations Productive Maturity: Independent Development Enjoyment of School
DEVELOPMENT OF CAREER TALENTS	Social Maturity: Peer Relations Aesthetic Maturity: Music Achievement Productive Maturity: Independent Development Enjoyment of School
EXPECTATIONS	Intellectual Maturity: CTBS Mathematics Aesthetic Maturity: Music Achievement

The relationship between Reinforcement of Self-Concept and Enjoyment of School indicates that the process of education was more enjoyable for students when they received recognition and positive feedback for the things they did well.

Classroom Participation had a pattern of relationships similar to that of Reinforcement of Self-Concept. It was significantly related to Peer Relations, Independent Development, and Enjoyment of School.

The Development of Career Talents scale was significantly related to Peer Relations, Music Achievement, Independent Development, and Enjoyment of School. The Development of Career Talents scale had the highest relationship ($r = .49$) with Independent Development, suggesting that development of student talents and capabilities was an important consideration in promoting students' orientation toward learning on their own outside of the school system.

In contrast to the educational process measures already described, the Expectations scale had significant relationships with the achievement test scores. This is an important finding. These relationships indicated that in classes where the students were expected to do a lot of work and to do their best, the students did, in fact, have higher levels of performance than in classrooms where expectations were not so high. An overview of these results suggests that high levels of expectations, combined with positive applications of the other instructional strategies, was associated with higher levels of performance on the key scales for the goal areas in the Utah Statewide Educational Assessment.

The effects of SES on the process measures of Individualization of Instruction, Reinforcement of Self-Concept, Classroom Participation, and Development of Career Talents were very limited in magnitude. These results indicated that the effects of SES did not provide an alternate explanation for the important relationships obtained with these process measures. There was a significant relationship between SES and the Expectations measure, indicating that teachers with higher income students in their classrooms tended to expect higher levels of performance. Whether teachers adjust their expectations to levels of likely student performance, or whether teachers have stereotypes about students from different income levels can not be ascertained from the data.

Summary

Educational process was measured by information from the students as they described their classroom activities. Five educational process measures--Individualization of Instruction, Reinforcement of Self-Concept, Classroom Participation, Development of Career Talents, and Expectations--were administered as part of the Assessment battery. The analyses of the information based on the student descriptions indicated that:

1) With the exception of Expectations, the educational processes measured in this study were generally not extensively used in Utah schools. The Expectations process measure had higher reported use than the other process measures, but there were still marked

differences across classrooms.

2) Each of the key goal area measures was significantly related to one or more of the student-reported educational process measures. These results provide supportive evidence that these instructional processes should be more widely used throughout the state and that additional research on these and other process measures is strongly warranted.

3) Three of the educational process measures were significantly related to the Enjoyment of School measure--that is, high levels of these educational processes in classrooms were associated with above average levels of Enjoyment of School.

4) SES had little influence on the educational process measures, although Expectations was associated with SES.

CHAPTER XI

SCHOOL CLASSIFICATIONS AND DEMOGRAPHIC CHARACTERISTICS

The school classifications and demographic characteristics of the sample were of interest to the project for various reasons. Principally, this was because such variables might help to explain differences found in educational attainment among the students tested in the State of Utah. There are many possible explanations for the relationships found among the school classifications and demographic characteristics and the other variables studied in this project, but the Socioeconomic Status variable seemed to have overriding pervasive effects. These effects have to be considered in interpreting the nature of the other demographic variables.

Socioeconomic Status

Throughout this report, from the review of related studies through the results, the significance and influence of SES on other measures has been discussed. While there can be no doubt about the impact of SES on the development of student capabilities and performance, the measure itself has not been discussed.

The present study followed the procedures developed in the 1975 Assessment, in which SES was defined by two subscores and a

total score. The first subscore included indicators of financial socioeconomic status as measured by such items as the occupation of the father and mother, the number of books in the home, whether the student had a place to study, etc. The second subscore contained items dealing with the family's educational orientation, and involved such characteristics as the education of the father and mother, the judged importance of education in the home, and whether it was important for the student to go to college. The total score was a composite of the two subscores. This total score has been referred to when relationships with SES have been discussed. The SES scales were constructed on the basis of previous research findings, generally following the precedents used in earlier studies; however, the combination of items used in the present study was unique.

On the surface, the items in these scales have no real explanatory power; they are external indicators which do not in any way attempt to cover all the underlying concepts of SES. While these underlying characteristics and correlates of SES cannot be extensively discussed here, they have been studied elsewhere with no resultant agreement about how they interact or which are crucial. Some of the underlying characteristics that have been mentioned in a number of different studies include family background, early learning experiences, influence of peer group, diet, genetic endowment, education of parents, the aspiration and perceived independence of role models versus feelings of rejection and resignation, etc. Finally, not only is the objective environment a crucial

concern, but this is modified by the child's perception of it. In addition to these and other separate components, the combination and interaction among them are extremely difficult to quantify and measure; but cumulatively they do have an effect as assessed by the relatively simple items included in the present study. They have such an effect, in fact, that it might be helpful to recall a conclusion from the Coleman study that "the schools bring little influence to bear on a child's achievement that is independent of his background and general social context." (Mayeske et al., 1973, p. 2)

The definition or nature of the crucial characteristics that underlie the measurement of SES are not necessarily the concern of the educational system. Rather, the educational system must be directed toward helping to overcome any disadvantages of children from lower SES families and providing them with at least equal opportunities to develop their capabilities.

The effects of SES observed in the study will be quickly summarized by reviewing the relationships between SES and the key measure from each goal area for the 5th and 11th grades. On 5th grade students, the effects of SES were most clear on the CTBS Mathematics score ($r = .37$) and the Music Achievement scale ($r = .43$). While all were statistically significant, the relationships of SES with key measures from the other goal areas were of lesser magnitude.

At the 11th grade individual student level, the relationships were about the same as those found on 5th grade students (the

correlation of SES with CTBS Mathematics was .34 and with Music Achievement was .44). Relationships with the key measures from the other goal areas again approximated the relationships found on 5th grade students. The measures that were available on 11th grade students and not on 5th grade students were also generally related to SES. For example, the results obtained with the Career Awareness and Exploration scale (r = .31 with SES) and the Economic Awareness and Consumer Competence scale (r = .40 with SES) indicated that students from the high SES homes generally had an advantage over children from lower income homes.

There are no easy answers for how the impact of SES can be overcome. Certainly, this problem should concern society as a whole, not just the educational system. The relationships obtained between SES and the process measures on both 5th grade classroom and elementary school levels do offer some possibilities for educators to help resolve these problems.

As mentioned previously, the relationships of the educational process measures with the key outcome measures were generally independent of the effects of socioeconomic status; the exception was Expectations which did have a significant relationship with SES on classroom level data (r = .30). This latter result indicated that, according to students, the teachers, in general, expect more work and higher levels of performance from students who come from higher income homes. Certainly, there is no shortage of problems and opportunities for educators and researchers to attack.

School Size and Location

Size of school did not have any significant relationships with the key measures in each goal area at the 5th grade level. That is, students from small elementary schools did about as well on the educational attainment variables as students from the larger elementary schools. The same was true of students from rural, urban, and suburban schools; there were essentially no differences in their performance on the assessment measures.

At the 11th grade level, students from smaller schools did not tend to do as well as students from the larger schools, although the differences were small. This was true on the academic achievement variables (e.g., CTBS Mathematics) and the non-achievement measures, including the Emotional Maturity measures of Academic Self-Concept and Autonomy. The small high schools, however, did approximate the performance of the larger schools on Music Achievement, a notable accomplishment in view of the relationships of SES with Music Achievement and school size. The lower performance levels of small schools are subject to alternate interpretations, if SES is considered. That is, the effects of SES provide an equally or more plausible explanation for the lower scores of smaller schools than their inherent characteristics.

Since school location, school size, and SES all were interrelated for high schools, the basic pattern of relationships presented for school size generally held for rural schools. The students from rural high schools did somewhat less well on CTBS Mathematics and

on Academic Self-Concept and Peer Relations. Again, there were no significant differences on Music Achievement, an indication of real progress in overcoming the effects of SES in this area. The students from small rural high schools tended to participate more in extra-curriculuar activities than students from the larger suburban and urban high schools. Evidently, there was less competition for the extra-curricular activities available, and more students could participate in more of the activities; or there were more opportunities for non-school activities in the larger population areas and, hence, less participation in extra-curricular activities at school.

Title I Schools

At the 5th grade level, students from Title I schools tended to have lower average scores on the achievement measures, including Mathematics, Reading, Art, and Music. On most other measures, however, there were non-significant differences between Title I and non-Title I schools.

Architecturally Open Versus Closed Elementary Schools

In 1975, additional open plan schools were included in the study to provide information about the relative strengths and weaknesses of open versus closed schools. Few differences were found; there were some slight advantages for the closed schools. The 1978 data, with no special sampling of open schools, essentially confirmed

these results: essentially no differences were found between open and closed schools.

Race

White students performed at higher levels on the CTBS achievement test scores than minority students. Part of this might be explained by the expected cultural bias found in the standardized achievement tests--white students typically have some advantage on such tests. Furthermore, if the effects of SES are considered, the performance of the minority students more nearly approximated that of the white students, a fact which represents a further challenge to educators and society as a whole.

Racial differences of any consequence generally were not found on the scales specially developed for Statewide Assessment (e.g., Academic Self-Concept, Peer Relations, Independent Development, etc.). Minority students scored at about the same level as white students on these scales. The potential of the minority student on these and other kinds of measures was not effectively tapped by the traditional academic achievement tests, and other sources of data need to be routinely used by the educational system, e.g., the scales from the current study.

At the 11th grade level, only a few differences existed among the various ethnic groups on the measures studied. Whites did score higher on the Reading and Mathematics scores. Further, the 11th grade data reflect a smaller percentage of minority students

which may reflect a high dropout rate for these students.

Summary

School classification and demographic characteristics were included in Statewide Assessment to determine their potential for explaining differences in the educational attainment of the students tested. The variables examined in this chapter were SES, school size, school location, Title I classification, race, and architecturally open versus closed schools. Following is a brief summary of the major results yielded by an examination of these variables and their relationships with the other measures included in the study:

1) SES was most strongly related to the achievement measures. Overall, this relationship tended to be stronger for the high school students than for the elementary students, indicating a cumulative impact of socioeconomic status.

2) The low relationships of SES with the educational process measures for 5th grade classrooms suggested a possible means for educators to help overcome the observed effect of SES on student achievement in the goal areas measured. For example, the increased use of Individualization of Instruction, Reinforcement of Self-Concept, Development of Career Talents, and Expectations with low SES students could help overcome the debilitating effects of that syndrome.

3) Primarily due to the effects of SES, students in small

high schools tended to have somewhat lower scores on the achievement measures than those from large high schools. The exception was for Music Achievement, where achievement levels were not significantly related to school size.

4) Also likely due to SES, students in rural high schools tended to have lower levels of academic achievement.

5) Results for the architecturally open versus closed schools were not conclusive, but favored the closed schools at the 5th grade level. Additional research is needed to clarify this issue.

6) Race was significantly related to academic performance, with minority students scoring slightly lower than whites. This was at least partially explained by the influence of SES.

CHAPTER XII

SUMMARY AND RECOMMENDATIONS

Overview of Assessment Results

This report has presented information concerning the performance of the Utah 5th and 11th grade students tested in the 1975 and 1978 Utah Statewide Educational Assessments. Information on the performance of students on measures for five of Utah's eight Educational Goals and for Enjoyment of School has been presented. Also examined were results from a set of educational process measures and demographic information. Since summaries have been presented at the end of each results chapter, this chapter will present a more general review of the results obtained, with emphasis upon implications and recommendations for educators. Other sections of this chapter will deal with follow-up activities and recommendations for future studies.

An overv ew of Utah's second Statewide Educational Assessment reveals different patterns of results for the 5th and 11th grade students tested. At the 5th grade level, there were at least slight increases in 18 out of a possible 23 measures that were used in both 1975 and 1978. These increases in approximately 78% of the measures used in the five Utah goal areas suggest a broad pattern of progress in Utah elementary schools. Increases were most marked

in the Autonomy score from the Emotional Maturity Goal area, Music Achievement, from the Aesthetic Maturity Goal area, and Expectations, one of the Educational Process measures. Areas where at least slight declines at the 5th grade occurred included Art and Music Activities, Individualization of Instruction, Independent Development, Enjoyment of School, and self-reported Mathematics Background.

At the 11th grade level, the results were less positive. Of 22 possible comparisons of measures used in both 1975 and 1978, 11 showed at least slight increases and 11 showed at least slight declines. A general picture of stability characterized the 11th grade comparisons. The three areas with the greatest improvement included Self-Acceptance and Autonomy from the Emotional Maturity Goal area and Peer Relations from the Social Maturity Goal area. The areas where the most marked declines occurred included Extra-Curricular Activities from the Social Maturity Goal area, Independent Development from the Productive Maturity Goal area, and Educational Orientation from the Supplementary Measures category.

Key Findings and Recommendations

Intellectual Maturity Goal Area

For the Intellectual Maturity Goal area, the average scores of the Utah 5th grade students tested were superior to those of the national standardization sample for both mathematics and reading. Available data suggest that Utah educators are to be commended for the performance of elementary students on these achievement measures.

At the 11th grade, the results were mixed. There was a slight decline in the Mathematics Total score from 1975 to 1978. In 1978, the results were generally comparable to the national standardization results. For 11th grade reading, no data were available for comparison from 1975. The 1978 results revealed that the Utah 11th grade students performed at a considerably higher level than did the national standardization sample. These results from the Intellectual Maturity Goal area lead to the following recommendations for Utah educators:

1) Review specific mathematics curriculum content for students in secondary schools. The evidence suggests that there are real opportunities for improvement in the development of mathematical skills for these students. Areas where there were declines relative to 1975 included Geometric Relationships, Mathematical Sentences, and Sets.

2) Coordinate curriculum offerings and counseling with career education plans for individual students so as to provide adequate mathematical background for student development.

Emotional Maturity Goal Area

The Utah students tested reported generally high levels of positive adjustment, as measured by their endorsement of positive self-descriptions on the scales used for the Emotional Maturity Goal area. Overall, there were positive trends from 1975 to 1978, with clear evidence of change most obvious for the Autonomy scale; this was true for both 5th and 11th grade students.

However, a small percentage of Utah students reported some difficulties in the Emotional Maturity area (6 to 19% depending on the grade and score area), indicating that continued sensitivity to

the emotional needs of children is very important. Another area of possible concern was the nearly equivalent level of scores of the 5th and 11th grade students on the Academic Self-Concept scale. In view of the relationship of Academic Self-Concept with other important educational outcomes, this area should be a major area of emphasis for the Utah educational system. These key results for the Emotional Maturity Goal area lead to the following recommendations for Utah educators:

3) Emphasize instructional strategies, such as Reinforcement of Self-Concept, which were associated with the emotional maturity of students.

4) Teachers and counselors should continue to be aware of students with potential emotional maturity problems. Effective educational strategies may produce a wide range of benefits for these students.

Social Maturity Goal Area

In the Social Maturity area, generally high levels of performance were obtained, since a high percentage of students endorsed positive self-descriptions. There was a small percentage of the sample who described themselves as "a little weak" or "poor" on the Peer Relations scale and such students would benefit from greater opportunities and experience in social interaction activities. Assignments involving teamwork, group activities, and other forms of social interaction could also be beneficial. There was a marked decline in the number of students who participated in Extra-Curricular Activities. The results for the Social Maturity Goal area lead to the following recommendations:

5) Continue use of appropriate strategies to develop higher levels of social skills; many strategies, such as greater use of classroom participation activities, could be merged into other curriculum areas and probably would be of benefit to students with low social skills.

6) Review the school-based extra-curricular programs to see if additional programs are warranted, expecially in the larger high schools.

Aesthetic Maturity Goal Area

In the Aesthetic Maturity area, 5th grade students demonstrated a clear increase in the Music Achievement score; this was an indication of real progress for the Utah elementary music program and music teachers. No change was evident for 11th grade students. The results showed a strong interest in art and music activities by a large percentage of Utah students. However, the results also revealed that some Utah students had neither become involved in, nor derived satisfaction from, different kinds of aesthetic pursuits. In general, there was no real evidence of growth from 1975 to 1978 on the extent to which Utah students participated in Art and Music Activities. Art Achievement of Utah 5th and 11th grade students could not be compared from 1975 to 1978 since a new measure was used in 1978. The relationship of Socioeconomic Status (SES) with the Art and Music Achievement measures was very apparent. The results did show, however, that a number of small schools in rural areas obtained approximately average scores on the Music Achievement test, in spite of the impact of low SES. These results for the Aesthetic Maturity Goal area lead to the following recommendations for Utah educators:

7) Review the art and music activities available to the students with the goal of matching activities with the interest level shown.

8) Continue to use a variety of strategies, including curriculum guides, pre-service and in-service training, etc., to increase Art Achievement for both elementary and secondary students and Music Achievement at the secondary level.

Productive Maturity Goal Area

Generally satisfactory performances were obtained on the measures used in the Productive Maturity Goal area; however, the results also indicated substantial opportunities for improvement. There was essentially no change from 1975 to 1978 for either the 5th or 11th grade students on the Independent Development scale. In addition, the two grades had very similar levels of development on this scale.

Although some of the 11th grade students tested had made plans and decisions about their future education and careers, there were a number of areas where substantial progress could be made. Emphasis should be placed on involving students in planned courses of study related to tentative career choices, having students become more familiar with the world-of-work through a variety of career education programs, etc. These results for the Productive Maturity Goal area lead to the following recommendations for Utah educators, which are essentially identical to the recommendations made in 1975:

9) Expand programs of career education, with more emphasis on developmental experiences, planning, and decision making with respect to future career choices.

10) Expand programs for students to obtain actual work experience, either as part of the curriculum or through outside work.

11) Infuse aspects of career education into a wide variety of curriculum areas.

12) Provide staff development on career education concepts and appropriate teaching strategies throughout the curriculum to promote higher levels of performance in this goal area.

Enjoyment of School

On the Enjoyment of School scale, generally positive results were obtained for both 5th and 11th grade students. The changes from 1975 to 1978 were small, with 11th grade students showing a slightly higher level of school enjoyment. Althrough the results were generally positive, there were still 15 to 25 percent of Utah students who did not enjoy school--a fact which could have serious implications for the school dropout problem. Thus, there are still opportunities for improvement and the results obtained with the educational process measures suggest that there are strategies available to increase students' enjoyment of school. These results for the Enjoyment of School scale lead to the following recommendations:

13) As opportunities permit, continue to accumulate data on educational process measures and other teaching strategies to find means through which the percentage of students who enjoy school can be increased. Measuring Enjoyment of School in educational evaluation endeavors should be a standard procedure. Such attention may contribute to a better understanding of school dropouts.

14) Review and implement more broadly the selected instructional strategies that have been found to be significantly associated with higher levels of enjoyment of school.

Educational Process Measures

The student-reported educational process measures had significant relationships with a variety of outcome measures from all the goal areas. One or more of the educational process measures was significantly related to the key performance measure of each goal area. Despite the relationships of the educational process measures with the goal-based measures and the Enjoyment of School scale, the educational processes measured in this study, with the exception of Expectations, were not reported as being frequently used in Utah schools. The educational processes measured were generally not highly related to Socioeconomic Status; however, because of their relationships with the various educational outcomes assessed, the processes should be used more frequently to offset the influence of that factor. The results from the educational process measures lead to the following recommendations for Utah educators:

15) Expand the general use of the instructional strategies exemplified by the process measures of the current study to promote higher levels of student performance.

16) Use of these or related process measures should be considered in most evaluation studies to develop a better understanding of educational process/outcome relationships.

Socioeconomic Status

Throughout the report, the pervasive associations of Socioeconomic Status with achievement and other characteristics have been mentioned. For both 5th and 11th grade students, the SES

measure was highly related to the achievement scores in the Intellectual and Aesthetic Maturity Goal areas and had somewhat lower relationships with key measures from other goal areas. Numerous educational programs at the national and state level, from governmental and non-governmental sources, have been developed to help overcome the problems of the disadvantaged, and the Utah results supported the general importance of such efforts. Continued efforts are necessary to overcome these problems--the results for low SES schools constitute a continuing and difficult challenge for Utah educators.

These results suggest the need for greater emphasis on programs which prepare secondary students to be informed and responsible parents. That is, if the effects of SES on the achievement of students are to be reversed, parents must play an important role. Future parents must be equipped with the knowledge and attitudes to overcome the educational disadvantages which now tend to characterize students from lower SES families. Since the 1978 results on Socioeconomic Status are similar to those of 1975, the recommendations for Utah educators are similar to those of the previous Assessment:

17) Examine all opportunities to aid disadvantaged students to develop their capabilities and, thus, provide for a real equality of educational opportunity.

18) Emphasize programs of early childhood education for parents.

19) Place greater emphasis on appropriate curriculum to prepare secondary students to become informed and responsible parents.

Follow-Up Issues and Recommendations

As in 1975, the development of follow-up activities with appropriate implementation strategies to make full use of the extensive information obtained from the Utah Statewide Assessment program is an important area of concern. Stated alternately, how can the information obtained from the 1978 Assessment be best used?

One of the recommendations of the 1975 Statewide Assessment reports was concerned with obtaining information to determine how the then current results could be made more responsive to the needs of users of such information. Since the 1975 results have been widely disseminated, this recommendation seems all the more obvious and important today. In the absence of a study about the use of Statewide Assessment results in Utah, the 1978 follow-up recommendations must be similar to those of 1975.

At the school and state levels, one of the primary purposes of the Statewide Assessment was to examine the status of education and thereby to promote higher levels of student growth. The information provided to different levels throughout the educational system should not be used in a way that would be counterproductive for professional staff development or student growth. This information should be a positive stimulus to bring about higher levels of performance.

Local Level

At the local level, reports were prepared for each school

that participated in the study. These reports were an innovative approach to computer-generated results and consisted of the school's standing on each of the measures used relative to the state average and relative to the average of similar schools (similar on SES, size, location, etc.). With this information, each participating school could examine its own standing in preparing the students on the goal areas assessed in this study and then react to any opportunities for improvement identified. The availability of these data leads to the following recommendations for participating schools:

20) Carefully review and analyze their results in conjunction with other information available and take steps to deal with any areas judged in need of attention.

21) Provide professional staff with appropriate training in the use of the instructional strategies that were associated with positive results on the key outcome measures.

22) Identify specific situational factors which may influence the results for the given school, and consider those situational factors in solving the problems identified at that school.

District Level

Generally speaking, the district personnel, where feasible, should provide support to personnel from the participating schools to attack any areas of concern to the school. Recommendations for the use of Statewide Assessment results relevant to district staff would include the following:

23) Consider the use of special teams to attack problems identified at the local school level. These teams might be made up of specialized personnel to provide staff training, demonstrations,

and other appropriate services. Where appropriate, districts might use expert State School Office support personnel.

24) Provide the necessary backup support and a positive environment that will allow administrators and teachers in a school to be innovative in solving the problems facing the students in that school.

State Level

In addition to the recommendations mentioned previously, specific follow-up recommendations at the state level include the following:

25) Consider further definition and simplification of the Utah educational goals to achieve additional specificity; accumulate information about the measures used for each goal area and their interrelationships to help in operational definitions of the goal areas.

26) Emphasize and/or design programs which will implement the instructional strategies identified by this project which had significant relationships with the key outcome measures.

27) When appropriate in the evaluation of various categories of educational programs throughout the state, incorporate measuring instruments from the Statewide Assessment. These instruments have been carefully developed, have a statewide norm base, and single copies are available to educators on request.

Recommendations for Future Assessment Efforts

With a large-scale study of this type there are a number of possibilities for further research which will provide benefits for future assessments. The current study, building upon the

extensive efforts of the 1975 Assessment, contributed new measurement capabilities that will benefit future assessment studies. These included a new Art Achievement scale, additional items for future Music Achievement scales, and new scales in the Productive Maturity Goal area. Future assessment studies can continue to contribute to this overall measurement capability, so that such efforts can be more thorough, economical, comprehensive, and flexible. Examples of future studies which should be considered include the following:

28) Since the pattern has now been set for assessments to occur every three years, more comprehensive, systematic, and continuous developmental efforts should take place between the assessment years, i.e., interim measurement studies for development of scales that can be used in the following assessment. This would contribute to more effectiveness and economy of research efforts.

29) As opportunities permit, results of Utah Statewide Assessment efforts and measurement technology should be used in a variety of state and district level evaluation studies. The availability of extensive norm data would make such evaluation studies more economical and would also benefit future assessment studies by providing additional information about educational program effects. Some projects are already using such options to obtain economical measurement coverage.

30) Economic constraints have not permitted use of some sophisticated analytic techniques that would contribute to a better understanding of progress toward Utah's educational goals. The research and program analysis opportunities inherent in the Utah Statewide Assessment program, both longitudinal and concurrent, should be more actively pursued in the future.

The second Utah Statewide Educational Assessment has provided extensive information to the public and the legislature about

the performance of Utah's schools. In essence, the study has fulfilled the accountability requirements which any public program warrants. In addition, the substantial range of information should help fill an even more important goal--improving education for Utah students. This is what the Statewide Assessment program is all about, and future assessments will work toward achieving higher levels of performance.

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APPENDIX A

SAMPLE SIZES, MEANS, AND STANDARD DEVIATIONS

1978 Sample Sizes, Means, and Standard Deviations

5th Grade Individuals and Classrooms

Variable	Individuals			Classrooms		
	N	MEAN	S.D.	N	MEAN	S.D.
1. Academic Self-Concept	3736	100.93	5.37	84	100.88	2.44
2. Self-Acceptance	3733	101.51	4.29	84	101.55	1.78
3. Autonomy	3736	102.06	3.67	84	101.93	1.47
4. Peer Relations	3736	99.70	7.89	84	99.76	3.64
5. Art Achievement (Garfield Key)	3967	110.71	3.88	85	110.70	2.13
6. Music Achievement (1975-1978)	3968	108.37	4.38	85	108.88	2.42
7. Music Achievement (1978-1981)	3968	109.31	4.70	85	109.86	2.59
8. Art and Music Activities (1975-1978)	3791	102.28	6.35	85	102.48	2.75
9. Independent Development	3736	97.76	8.13	84	97.75	3.38
10. Individualization of Instruction	3304	98.59	4.32	85	98.79	2.47
11. Reinforcement of Self-Concept	3304	101.46	5.13	85	101.90	2.68
12. Classroom Participation	3304	101.09	4.85	85	101.50	2.55
13. Development of Career Talents	3304	98.24	4.33	85	98.70	2.52
14. Expectations	3304	105.94	4.01	85	106.13	2.01
15. Enjoyment of School	3736	99.07	5.08	84	99.29	2.26
16. Educational Orientation	3298	102.07	3.30	85	102.15	1.31
17. School Educational Experiences	3790	100.20	3.38	85	100.15	1.52
18. Creativity	3734	102.26	11.71	84	102.53	5.01
19. Mathematics background	3736	100.27	2.80	84	100.16	1.29
20. Reading Background	3736	100.39	3.64	84	100.33	1.46
21. SES-Financial	3301	104.26	3.07	85	103.99	1.62
22. SES-Educational	3299	100.98	2.26	85	100.88	0.91
23. SES-Total	3302	105.24	4.49	85	104.88	2.30
24. Reading-Vocabulary	3951	28.40	7.70	84	28.96	3.85
25. Reading-Comprehension	3951	29.84	9.22	84	30.62	4.73
26. Reading-Total	3916	58.27	16.06	83	59.57	8.26
27. Mathematics-Computation	3938	33.23	9.38	84	34.92	4.66
28. Mathematics-Concepts	3928	16.06	4.66	84	16.50	2.13
29. Mathematics-Applications	3874	15.58	5.99	83	16.19	2.83
30. Mathematics-Total	3865	65.01	18.03	83	67.52	9.07

1978 Sample Sizes, Means, and Standard Deviations

11th Grade Individuals

Variable	N	MEAN	S.D.
1. Academic Self-Concept	1817	99.30	5.69
2. Self-Acceptance	1817	101.26	4.11
3. Autonomy	1817	102.16	3.73
4. Peer Relations	1817	100.89	8.64
5. Extracurricular Activities	1814	97.76	4.15
6. Art Achievement (Garfield Key)	1864	114.51	4.33
7. Music Achievement (1975-1978)	1856	111.91	5.28
8. Music Achievement (1978-1981)	1856	113.23	5.70
9. Art and Music Activities (1975-1978)	1835	99.96	7.32
10. Career Awareness and Exploration	1815	105.92	7.74
11. Independent Development	1817	97.75	8.09
12. Career Development Experiences (1975-1978)	1815	98.81	4.92
13. Productive Maturity-Cognitive	1815	115.90	3.35
14. Enjoyment of School	1817	99.89	5.16
15. Educational Orientation	1815	100.93	3.19
16. School Educational Experiences	1835	101.22	3.47
17. Creativity	1816	98.96	12.02
18. Mathematics Background	1817	99.06	2.93
19. Reading Background	1817	99.65	4.12
20. SES-Financial	1814	104.44	2.87
21. SES-Educational	1815	101.32	1.92
22. SES-Total	1814	105.77	4.07
23. Reading-Vocabulary	1830	28.13	8.20
24. Reading-Comprehension	1830	31.13	8.39
25. Reading-Total	1830	59.31	15.85
26. Mathematics-Computation	1809	32.88	10.63
27. Mathematics-Concepts	1797	16.92	5.14
28. Mathematics-Applications	1792	15.14	5.75
29. Mathematics-Total	1792	65.16	19.83